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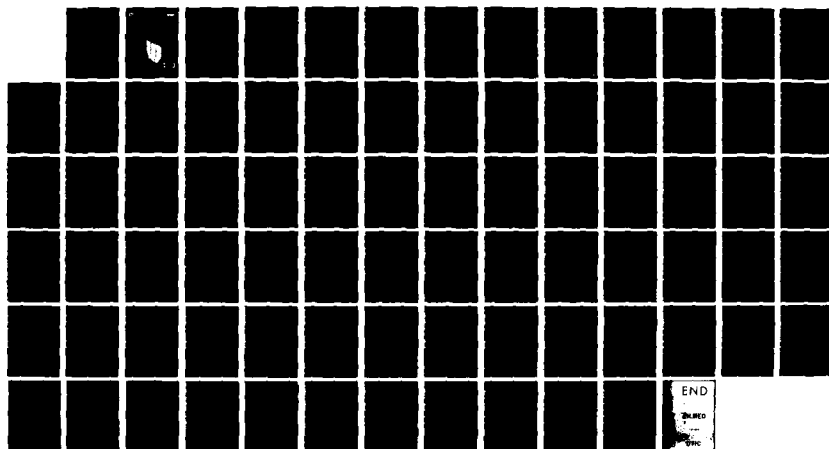
PROJECT MANAGER'S HANDBOOK FOR SPECIAL PROJECTS(U)  
CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN  
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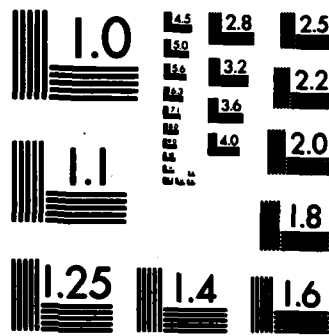
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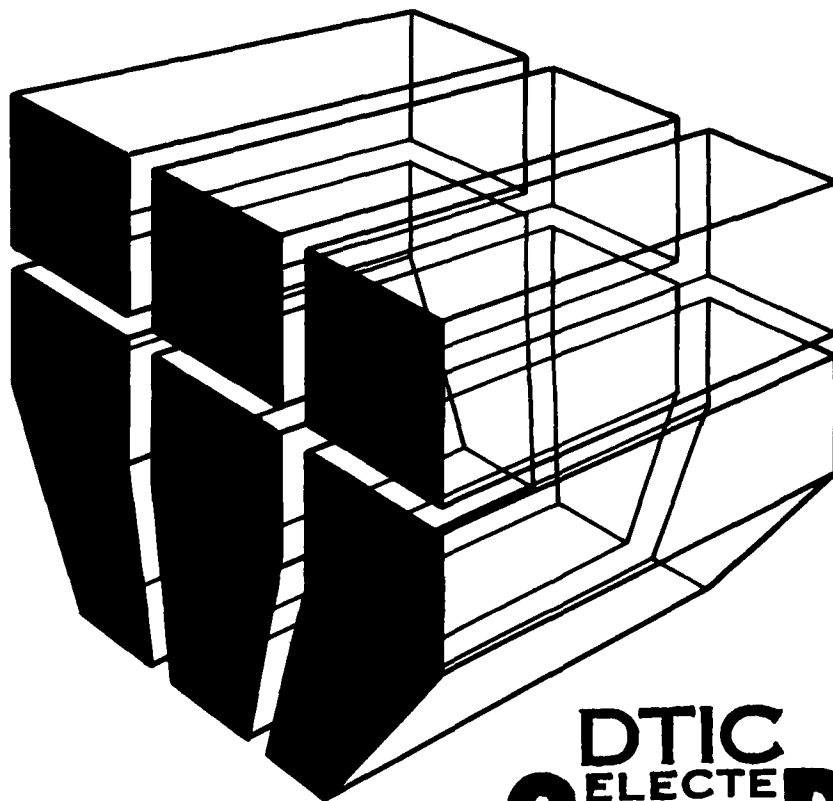
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**TECHNICAL REPORT P-85/01**  
October 1984

**AD-A147 913**

**PROJECT MANAGER'S HANDBOOK  
FOR SPECIAL PROJECTS**

by  
**J. G. Kirby**



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BLOCK 20. (Cont'd).

Based on the results of questionnaires and meetings with former special project personnel, ways of solving or preventing these problems are proposed. It is recommended that the proposals presented in this report be used to supplement existing Corps guidance on special project management.

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## FOREWORD

This research was conducted for the Engineering and Construction Directorate, Office of the Chief of Engineers, under Project 4A162731AT41, "Construction Management and Technology"; Task B, "Management Systems"; Work Unit 39, "Construction Management Handbook." The Technical Monitor was Mr. Robert Jaggard (DAEN-ECC-Q).

Special Project Workshop participants were Mr. Raymond Aldridge (HND), Mr. Jeff Arrington (Bolling AFB), COL Jack Clifton (MRD), COL Jack Gilkie (Ret.), Dr. Leroy Graw (PACNAVFACENGCOM), Mr. Newton Klements (NAD), COL William Lee (HND), COL John E. Moore, Jr. (FESA), LTC Terry Ryan (National Defense University).

The work was performed by the Facility Systems Division (FS) of the U.S. Army Construction Engineering Research Laboratory (USA-CERL). Mr. E. A. Lotz is Chief of CERL-FS.

COL Paul J. Theuer is Commander and Director of USA-CERL, and Dr. L. R. Shaffer is Technical Director.

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### DISTRIBUTION

PROJECT MANAGER'S HANDBOOK  
FOR SPECIAL PROJECTS

1 INTRODUCTION

Background

U.S. Army Corps of Engineers personnel are occasionally asked, on short notice, to manage a large-scale construction project at a remote overseas area. These jobs, often referred to as special projects (SP), are outside the mainstream of Corps activities and cannot be handled by attaching a new resident office to an existing District. The special project is typically not a routine job. Table 1 lists some of the major differences between an SP and a routine project.

Since there is no District responsible for the area in which the project will occur, there is typically little or no U.S. forces infrastructure support available. Also, the location is often in a country that has little commercial infrastructure to support a large-scale construction project. Thus, the Project Manager (PM) must set up a Corps/contractor organization that has to be largely self-supporting. The PM is also responsible for support activities not normally required in "routine" CONUS Corps jobs (e.g., housing, food service, recreation, security, import regulations, and transportation).

Another key difference is that the PM must be aware of and work within the political boundaries imposed on the special project. COL John Moore, past Commander of the Near East Project Office, has stated:

The magnitude of the project vs. the size of the country may impose overriding political considerations. For this reason, the mission of the Corps is often to build in a political environment. Thus, the PM should be aware of his/her role in the political arena. Flexibility is a key attribute because sometimes political considerations can override practicality, cost-effectiveness, and timeliness.<sup>1</sup>

Much commercial and Army<sup>2</sup> literature on project management is available. However, none of these documents addresses the unique problems encountered with an SP, so the PM must learn from experience. This is an inefficient process, since a project manager may only be involved with one SP

<sup>1</sup>Special Project Managers Workshop held at the U.S. Army Construction Engineering Research Laboratory, July 1983.

<sup>2</sup>Military Construction Project Management for Mobilization; Training Course Guide for the Preparation, Negotiation and Management of Cost Reimbursement Type Construction Contracts; MC Project Management; these guides are available from the Corps of Engineers Huntsville Division, CE Training Management Division (1983 editions).

Table 1  
Special Project Requirements

<u>Item</u>	<u>Routine Project</u>	<u>Special Project</u>
Authority	Normally held at OCE or responsible Division.	Assigned to project manager organization.
Contract type	Usually firm fixed price (FFP) competitive bid.	Can be FFP or cost reimbursement. Typically has unusual contracting procedures to shorten the timespan.
Scheduling of work	Normally 40 hr per week with multi-year construction schedules.	Accelerated construction schedule, normally 6 10-hour days per week. Activities "pushed" to provide facilities in the shortest possible time.
Design effort	Performed by specialized architect-engineer.	Extensive use of standard designs/preengineered facilities.
	Design fully completed before construction award.	Construction often starts before design completion.
Management	Project management largely the contractor's responsibility.	Corps takes an active part in the management process--a "team effort."

during his/her career, and so far there has been no effective way to transmit "lessons learned" to the next PM.

#### Purpose

The purpose of this guide is to supplement existing project management literature by identifying unique problem areas that an SP project manager is likely to encounter and to recommend solutions to these problems.

## Approach

Information on special project problems was gathered from a variety of sources, including:

1. Corps documentation on recent special projects.
2. Literature on other special projects.
3. Recommendations from selected Corps employees with special project experience. A questionnaire was sent to personnel with experience in the Israeli Airbase Program, the Sinai Multinational Force and Observers (MFO) Facilities, and Saudi Arabia projects. The respondents ranked the most likely SP problem areas (Table 2).<sup>\*</sup> The 10 topics in Table 2 were discussed during a Special Project Workshop. Participants included past PMs and area engineers as well as specific activity specialists. Based on the results of the research, recommendations for designing an appropriate plan of action to solve or reduce/minimize the impact of the problem area were made.

## Scope

The information in this handbook is limited to identifying only SP problem areas that are likely to occur with a project.

Large-scale special projects with time constraints have tended to be cost-reimbursement contracts. Thus, much of the information in this handbook has been obtained from sources associated with cost-reimbursement contracts. However, these topics are also often applicable to the management of fixed-price contracts.

## Organization of Report

The following chapters deal with each problem area identified in Table 2. Each chapter discusses a separate problem area and can be read independently. When appropriate, the entire life-cycle of the SP is presented.

## Mode of Technology Transfer

It is recommended that the information in this report be used to supplement the 415 series of Army Regulations (Construction).

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<sup>\*</sup>Appendix A provides a sample questionnaire.

Table 2

Special Project Problem Areas

<u>Importance</u>	<u>Problem Area</u>
1	Purchasing and contracting
2	Planning and control
3	Engineering/design
4	Country-to-country agreement
5	Civilian personnel
6	Construction
7	Communications
8	Office/PM operations
9	Corps/contractor relations
10	Transportation

## 2 SPECIAL PROJECTS PHASES

The information in this report is presented by topic. Before discussing the problem areas, it is worthwhile to review the activities in which a PM would be involved during the phases of a special project.

### Premobilization

The time between concept identification and the signing of the first contractual document is called premobilization. During this period, the PM is involved in a variety of activities, including:

1. Establishing authority of PM (charter) and identifying the special waivers and approvals required.
2. Insuring that the relative priority of the project within the Corps is quantified.
3. Requesting necessary waivers and approvals.
4. Establishing frequent communication with OCE and the country-to-country negotiating team.
5. Developing Corps PM organizational structure and identifying start-up personnel (cadre).
6. Initiating recruitment of key Corps cadre/permanent employees.
7. Defining the user/customers/construction agency relationship.
8. Defining and finalizing the scope of work as much as possible.
9. Establishing preliminary schedule/ cost estimates.
10. Selecting type and number of required contracts.
11. Preparing for and awarding contracts.
12. Developing and implementing a contract management plan.
13. Initiating a search for office space and housing in-country.
14. Collecting a technical and regulatory library.
15. Collecting the initial issue of government forms and supplies.
16. Defining requirements for audit, quality control/quality assurance (QC/QA), safety, and security.
17. Reviewing communication availability and requirements.

18. Initiating actions to obtain required communication from host country.

### Mobilization

During premobilization, the Corps and the contractor reach agreements (preliminary agreements if a letter contract is used) regarding a scope of work and a schedule. During mobilization, both parties are "gearing up" for full-scale operations. The activities involved are:

1. Completing recruitment of quality Corps and contractor personnel to replace cadre. Top-down selection should be used.
2. Insuring that the design/purchasing/construction interface is managed effectively.
3. Managing design to insure maximum use of preengineered components and buildings.
4. Insuring early implementation of QC/QA.
5. Freezing design as soon as possible.
6. Reviewing contractor operating policy for purchasing operations, SOPs, collection of equipment O&M data, and collection of shop drawings.
7. Insuring quick startup of life support system, subcontracting, purchasing, and construction.

### Peak Construction

During peak construction, the goal is to get the job done. If plans made during the early stages have been implemented well, any difficulties in the support areas (procurement, supply, transportation, life support, etc.) should only be minor. The major management emphasis during this phase is on the following technical aspects of construction:

1. Monitoring progress and quality against budgeted time and cost.
2. Revising projections based on past performance and current estimates.
3. Minimizing the number of allowed change proposals.
4. Maintaining a current listing of turnover schedule and managing the construction schedule against an earlier turnover date.
5. Initiating planning for the following close-out actions: selecting the close-out team, selecting the location, and establishing a timetable.

### Phase-Down/Close-Out

A smooth phase-down/close-out will reduce both project cost and time to completion. Early planning and careful management of the following activities will facilitate the process:

1. Maintaining surveillance of work remaining.
2. Monitoring productivity during phase-down.
3. Finalizing close-out planning and implementation.
4. Reducing personnel.
  - a. Initiating time-phased draw-down.
  - b. Establishing out-placement.
5. Reviewing the contract.
  - a. Setting milestones.
  - b. Establishing close-out location.
  - c. Initiating property transfer as appropriate.
6. Beginning to address issues during phase-down.
  - a. Disallowances.
  - b. Transfer of material and property.
  - c. Finalizing cost reports and records.
  - d. Preparing close-out documentation.
7. Turning the project over to the user.
  - a. Providing training for operating personnel.
  - b. Obtaining users/operators manuals.
  - c. Obtaining spare parts.



### 3 PROCUREMENT

Figure 1 gives a generalized overall network of the activities for the procurement process--awarding and management of a construction contract.\* No time-frames are given, just the sequential relationships of activities. A specific network must be developed for each special project. However, Figure 1 should be used as a strawman and development tool. The following sections briefly describe each activity.

#### Develop Initial Schedule

Good management requires an overall plan and schedule. Figure 1 should be used as a point of departure for developing such a plan for contract management. Since not much time will be available, it is suggested that a detailed network be developed first and then timeframes assigned. Note that some activities such as "prepare for contract award and award contract" can be easily expanded to include all the traditional activities for competitive bids or negotiated agreements. Since this is an important process in a special project, a time-phased timetable is presented as Table 3.

#### Identify Rough Scope of Work

Detailed project clarification may not be readily available at the early stages of premobilization. One reason may be that the required country-to-country agreement has not yet been finalized. Former Corps PMs have recommended that a special project coordinator liaison position be established at the Office of Chief of Engineers (OCE) to insure that the results of the country-to-country agreements are entered into the project planning and vice versa. Nearly all decisions will be based on the scope of work. Having as much information available as possible at the earliest date will reduce problems later.

#### Obtain Project Manager Charter

The PM should press for an early definitive list of delegated authorities under which the organization will operate. This will make responsibilities obvious. The degree to which responsibilities are delegated to the PM organization will influence early key decisions in PM organization, staffing, and contract management.

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\*A key element in a special project is the process of purchasing and obtaining the required materials. Considerations of how the contractor will perform in this critical activity are important. For ease of reading, the purchasing activities are presented separately in the next chapter. These activities are obviously interrelated and the networks should be considered together.

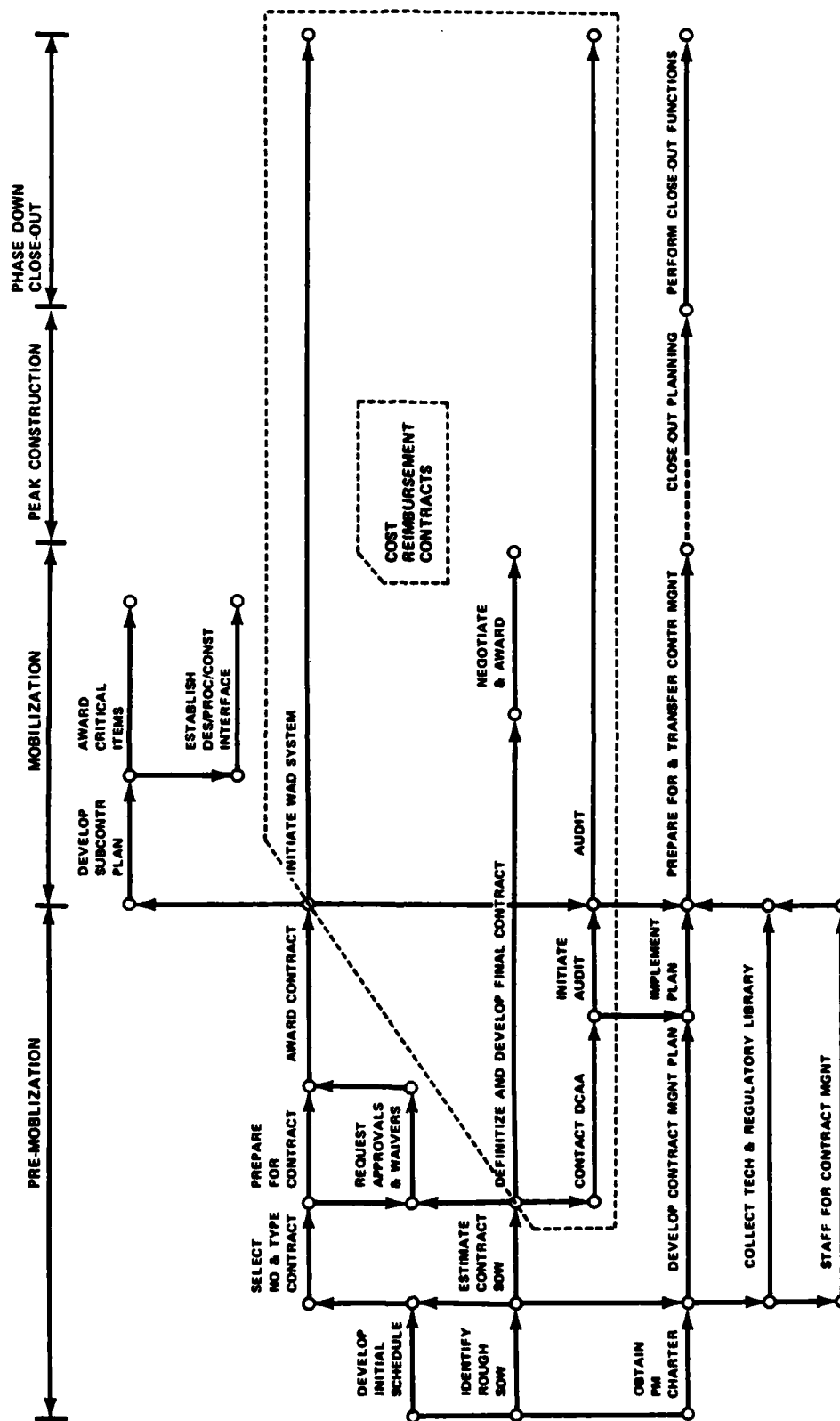


Figure 1. Special project procurement process.

Table 3

## Sample Plan for Contractor Selection

<u>Date Initiated</u>	<u>Event</u>	<u>Required Actions</u>
	Pre-Award Team Meeting	<ul style="list-style-type: none"> <li>- Preparation of Determination and Findings</li> <li>- Request Required Approvals</li> <li>- Prepare Procurement Plan and Management Plan</li> </ul>
	Intercountry Agreement and Necessary Funding	
D	Release of Notice in Commerce Business Daily	<ul style="list-style-type: none"> <li>- Letter Contract Synopsis to Commerce Daily</li> <li>- Receive Contractor Security Clearance as Required</li> </ul>
D+4	Conduct Industry Briefings	<ul style="list-style-type: none"> <li>- Prepare Briefing</li> <li>- Check on Attendees Security Clearances (if required)</li> <li>- Procedures for Question Submittal</li> </ul>
D+6	Receive Contractor Submittal of Qualifications	<ul style="list-style-type: none"> <li>- Establish Administrative Procedures and Required Support</li> </ul>
D+7	Receive Prospective Contractor Questions	<ul style="list-style-type: none"> <li>- Team Formed to Answer Questions</li> <li>- Administrative Support Arranged</li> </ul>
D+7	Team Prepares Written Responses to Questions	<ul style="list-style-type: none"> <li>- Responses Reviewed and Concurred in by Principal Contracting Officer (PCO) and Project Manager (PM)</li> <li>- Responses to All Questions Returned to All Contractors</li> </ul>
D+8	Convene Source Selection Board (SEB)	<ul style="list-style-type: none"> <li>- Evaluate Contractors Qualification Statements</li> <li>- Identify List of Highly Qualified Applicants</li> <li>- Contractors by Criteria</li> <li>- Document Inclusion or Exclusion</li> </ul>
D+8	Request Detailed Information from Highly Qualified	<ul style="list-style-type: none"> <li>- See Appendix B for Letter Topics to be Covered</li> </ul>

Table 3 (Cont'd)

<u>Date Initiated</u>	<u>Event</u>	<u>Required Actions</u>
D+10	SEB Conducts Oral Examination of Contractors	<ul style="list-style-type: none"> <li>- Prepare Letter Outlining Procedures</li> <li>- Limit time</li> <li>- Prepare Evaluation Documentation</li> <li>- Rank Prospective Contractors</li> <li>- Document Selection Rationale</li> </ul>
D+11	Recommendation Forwarded to Senior Contracting Officer	<ul style="list-style-type: none"> <li>- Include Written Report with Rationale</li> <li>- Selection Memoranda with Recommendation</li> <li>- Present Oral Briefing if Required</li> </ul>
D+12	SSO Selects Contractor	<ul style="list-style-type: none"> <li>- Letter to Nonselected Candidates</li> <li>- Select COR</li> <li>- Obtain Clearances and Congressional Approval</li> </ul>
D+13	Issue Letter Contractor	<ul style="list-style-type: none"> <li>- Prepare Draft Letter Contract (See Appendix B)</li> <li>- Obtain OCE Approval</li> <li>- Finalize Letter Contract</li> <li>- Sign</li> </ul>
D+13	Informal Mini Post-Award Conference	<ul style="list-style-type: none"> <li>- Discuss Letter Contract with Selected Contractor</li> </ul>
D+13	Designate Contracting Officers Representatives (CORs)	<ul style="list-style-type: none"> <li>- Identify Prospective CORs</li> <li>- Prepare CORs Letters</li> <li>- Initiate Contractor Procurement System Review (CPSR)</li> </ul>
D+18	Formal Post Award Conference	<ul style="list-style-type: none"> <li>- Contractor Submits Agenda at D+5</li> <li>- PCO Develop Government Agenda at D+5</li> <li>- Contractor Submits How Mission Will be Accomplished Within Constraints. Anticipated Problems Presented.</li> <li>- Begin Definitization Actions</li> </ul>

## Select Types and Number of Contracts

### *Type of Contract*

All major contracting decisions, such as type of contract (firm fixed price, cost plus fixed fee, cost plus incentive fee, or cost plus award fee),\* will be made during premobilization. Selecting the proper contract type requires consideration and trade-offs among many factors. Principal consideration should be given to:

1. The degree to which the scope of work, plans, and specifications are complete and firm.
2. The amount of the project risk the contractor will be expected to assume.
3. The relative priority the Corps places on quality of work, cost, and completion time.

Table 4 gives a general guide to the conditions which should be considered in contract type selection. This table, or one like it, should be used to identify the advantages and disadvantages of each viable contract type. After each project condition has been evaluated against contract type, the scores should be totaled and the most "appropriate" contract alternative selected.\*\* The suitability of the suggested factors for the specific project should be validated and modified as required.

The PM should press for the incentive fee approach if a cost-plus strategy is adopted. This contract approach may be difficult to get approved, since the Corps has limited experience in this area. However, the benefits of a cost plus incentive fee (CPIF) to the Corps can be substantial.<sup>3</sup> They include:

1. An opportunity for lower project cost.
2. Reduction of the Corps requirement for monitoring contractors' procurement and planning activities.
3. Providing the contractor with the incentive to manage effectively.
4. Corps administrative cost is not increased.

The PM should be aware that once the type of contract has been decided, this decision typically cannot be changed because too many follow-on decisions

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\*See Appendix C for definition.

\*\*Note that Table 3, as presented, implies equal weighting between conditions. If greater differentiation between conditions is required, two additional grades should be included (++ very appropriate, and -- very inappropriate).

<sup>3</sup>M. J. O'Connor and G. E. Colwell, Cost Plus Incentive Fee for Construction Contracts, Technical Report P-118/ADA093959 (U.S. Army Construction Engineering Research Laboratory, 1980).

Table 4

Conditions To Be Evaluated To Select Contract Type  
 (From The Training Course Guide for Management and Administration  
 of Cost Reimbursement Type Construction Contracts, Vol. 1,  
 [Corps of Engineers], pp 4-9.)

TYPE OF CONTRACT	CONDITIONS													TOTALS		
	1	2	3	4	5	6	7	8	9	10	11	12	13	+	0	-
COST REIMBURSEMENT																
COST PLUS FIXED FEE																
COST PLUS AWARD FEE																
COST PLUS INCENTIVE FEE																
FIRM FIXED PRICE																

#### Grading

+ appropriate

0 factor does not apply

- inappropriate

#### Checklist of Project Condition To Be Evaluated (Suggested)

1. Plans, specifications, scope of work - well-defined, firm, and final
2. Innovative design based on novel techniques, equipment, and materials.
3. Extremely large, complex project of variable scope.
4. Unprecedented job. High technology. State-of-the-art. Performance specifications involved.
5. Remote, hostile, or rigorous location.
6. Little subsurface certainty.
7. Job of moderate or short duration.
8. Job of long duration.
9. Tight overall schedule with insufficient time for study and preparation of complete designs. Urgent. Construction must proceed concurrent with design.
10. Critical completion date and milestones.
11. Budgetary limitation on job cost.
12. (Other conditions)
13. (Other conditions)

depend on the type of contract. Changing the type of contract is therefore not practical.

#### *Life Support Contract(s)*

If the special project is a short-duration, time-sensitive effort, a design/build (fast-track) approach will undoubtedly be used. If so, a design/construct contractor (DCC) will probably be required. Typically, special projects will be constructed in remote sites; thus, life support facilities will be necessary for both contractor and Corps personnel. This area is sometimes outside the expertise of a DCC. Hence, the DCC will typically subcontract this activity to a separate life support contractor. The life support effort is extremely important; it is a real factor in determining employee morale and represents a significant cost element. Thus, the PM should be fully satisfied that the contractor responsible for this service has a proven track record. Benefits to be provided should be the same to both Corps and contractor personnel. Consideration should be given to establishing a Corps position to monitor this effort.

#### *Number of Contracts*

Past multiple-site special projects have been awarded to both single and multiple contractors. There are arguments in favor of both approaches. However, the economies of scale possible by using no more than one contractor for design, construction and logistics offer a potentially large savings. For the Israeli Airbase Program, the Corps PM has stated, "I estimate the three-package concept (one designer, one constructor and one logistics contractor) savings very conservatively at \$50 million."<sup>5</sup>

#### Request Approvals and Waivers

The ability to use extraordinary contracting methods will probably have been mentioned in the initial tasking documents. Once the decision on the type of contract has been made, the required waivers and approvals can be determined. Request for approval of the type of contract, use of a letter contract (if applicable), use of a turnkey one-step negotiated design/construct (if applicable), and authorization for public announcement are but a few of the types of approval that may be required. These approvals must be identified, requested, and obtained before contract negotiations.

#### Develop a Contract Management Plan

A detailed plan that identifies what is necessary to effectively manage the special project construction contract(s) must be established. This plan must be tailored to the specific application. Key decisions for the plan include the type and number of contracts used, reporting requirements, and staffing.

<sup>5</sup>B. G. Wall, The Israeli Airbase Program Lessons Learned, May 1982, page vi.

### *The Type and Number of Contracts Used*

The type of contract--fixed-price or cost-reimbursement--determines how much effort the Corps must spend in contract management. If a fixed-price contract is used, the contractor will assume the normal, well-defined project risks and full cost responsibility. The contract management effort required is not intense and centers on insuring that the contractors supply the desired quality product within the agreed-upon timeframe. A cost-reimbursable contract is different, because the contractor assumes limited or no risk and no cost responsibility (see Table 5). Thus, the contractor has very little incentive to perform efficiently and to meet the Government's contracting goals of least cost, desired quality, and desired delivery date. Effective use of cost-reimbursable contracts requires a team approach between the Corps and the contractor. The Corps assumes the role of the director and approver of the work, and the contractor acts as the constructor. Thus, in a cost-reimbursement contract, the Corps must take an active role in project management as well as in reviewing the cost, quality, and timeliness of the product. The level of Corps involvement is therefore much greater than with a fixed-price contract.

Multiple contracts require Corps involvement with the different contractors' methods of operations. Management of multiple construction contracts requires an increased level of effort, and therefore staffing. Whenever possible single contracts are recommended.

### *Reporting Requirements*

Non-Corps funding sources may require special reporting. These requirements should be identified as soon as possible.

A key element of the plan should be identifying the specific performance criteria on which contractors will be judged. These criteria include more than the cost and schedule of the actual construction. All items to be used for performance measurement must be established and agreed upon by the contractor during negotiations. The contract should specify that the contractor submit the required data to measure these criteria.

With cost-reimbursement contracts, it is recommended that an earned value approach be selected to monitor the construction. Basically, a budgeted cost and time estimate is prepared for each unit of work in the Work Breakdown Structure (WBS) before any work begins. Figure 2 shows these relationships. The performance against the budget estimate measures (1) the cost variance, which is defined as the actual cost of work performed (ACWP) minus the budgeted cost of work performed (BCWP), and (2) the schedule variance, which is defined as the budgeted cost of work performed (BCWP) minus the budgeted cost of work scheduled (BCWS). That is, cost variance =  $ACWP - BCWP$ ; schedule variance =  $BCWP - BCWS$ .

### *Staffing*

The contract management plan should include a schedule for staffing up and phasing down the Corps contract management function. As shown in Figure 3, contractor staffing level requirements change over time. Careful consideration should be given to when contract management responsibility will be



Table 5

**Cost-Reimbursement Contract Management Responsibilities  
(Modified from Exhibit 3-1, pp 3-5, Contractor's Management  
Responsibilities on Cost-Reimbursement Type Construction Contracts  
with the Corps of Engineers, Vol. 11, Huntsville Division,  
Corps of Engineers.)**

**Corps-Contractor Team Concept**

**Corps-Contractor Role**

<u>Responsibility</u>	<u>Contractor</u>	<u>Corps</u>
Management	Primary Responsibility	Chairman, participate, monitor
Organization		
Personnel		
Work plan		
Balance resources		
Productivity		
Control	Functional participation since assigned-assumption of responsibility may increase with fee	Primary responsibility
Cost		
Schedule		
Quality incentives		
Directive	Recipient, execution	Issue as necessary follow-up
Work execution		
Changes		
Improvements		
Corrective		
Performance Evaluation	Knowledgeable of standards and criteria	Measure effectiveness; object is to enhance performance
Standards		
Criteria		
Measurement		

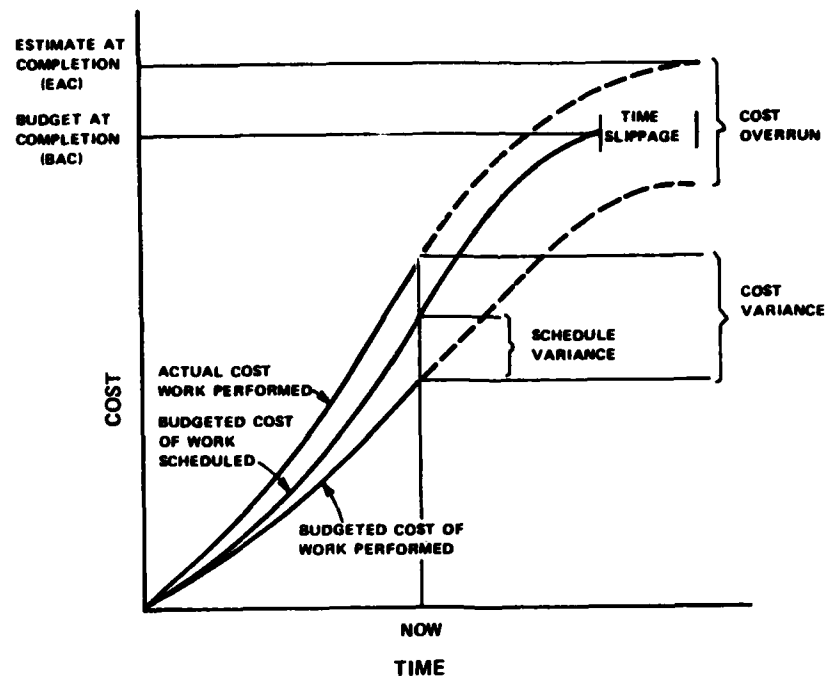


Figure 2. Earned value project analysis.

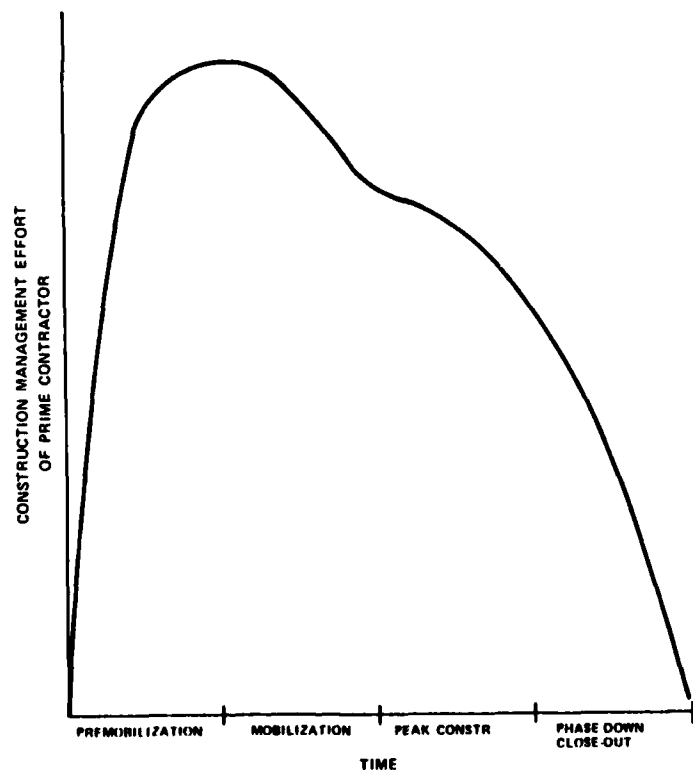


Figure 3. Construction management level of effort. (From Training Course Guide for the Preparation, Negotiation, and Management of Cost-Reimbursement Type Construction Contracts, 1983 edition [Huntsville Division, Corps of Engineers, 1983].)

transferred to the in-country office. Note that it is better to delay this action until the office is fully staffed and ready to "run" with the responsibility. The plan should also cover close-out actions and their anticipated schedule. This item will be revised and updated during the early phases of peak construction.

#### Implement Contract Management Plan/Transfer Contract Management In-Country

In-country Corps contract management should become fully operational during the later phases of premobilization. However, contract management authority should not be transferred to the in-country function until the organization is fully staffed. Previous Corps project managers have noted that it was a disadvantage to transfer authority from CONUS to the field office before the field office was ready. When this occurs, the management process falls behind, and lack of a real-time management ability is a hindrance.

#### Collect Technical and Regulatory Library

Since the project management office will be in a remote area, a complete set of technical and regulatory documents should be collected to ship with the first group of personnel. Included should be a copy of the country-to-country agreement, host country laws, and the specific statutory authority granted to the PM. Each cadre member should bring a current copy of the appropriate technical and regulatory documents. A system should also be established for receiving updates to Army Regulations, Engineer Regulations, and Defense Acquisition Regulations; the reference library can then be kept "current."

#### Staffing for Contract Management

Continuity of contract administration for the duration of the special project is very important. Thus, key duration members should be identified and recruited first. During the in-house staffing, temporary duty assistance can be requested from other Corps elements. The in-country contract management team must be fully assembled and operational before the transfer of contract management authority. Both the Corps and the contractor should commit personnel by name and length of tour. The contract close-out team should be selected during peak construction, so that as many issues as possible can be resolved during the project phase-down.

#### Negotiate Advance Agreements

An effective cost-plus contract will require the completion of advance agreements prior to award. These agreements should be negotiated, written, and signed by both parties and included as an appendix to the contract.

Topics should be developed for each individual special project. Suggested topics for consideration are listed below:\*

- Project management plan
- Assignment of key personnel and phased staffing plan
- Personnel pay and benefits
- Depreciation of assets
- Precontract costs
- Travel expenses
- Automatic data processing equipment
- Management information system

#### Contract Definitization

Work on urgent special projects is often begun by a letter contract. This document defines, in the broadest sense, the scope of the job. Basically, it provides the authority for a limited period of time, for the contractor to begin work and to spend funds up to a certain predefined upper limit.

A separate definitization/negotiation team should be established whose members are not involved in day-to-day operations. It should include as many non-Corps experts as needed for specialized areas such as insurance, transportation, and life support. During this phase, there must be a fulltime liaison between operations and the definitization team. This will insure that the team is kept up to date on daily operational decisions that will affect negotiations and that a detailed written record is maintained. This liaison function is important because historically, many claims have resulted from changes in the definitization agreements that were made in the field, but never made known to the definitization team. After definitization, a contract modification is issued to replace the letter contract with either a firm-fixed price or cost-reimbursement contract.

Note that during the definitization process, the contractor is proceeding with very limited guidance. The Corps must be staffed well enough to review and audit the contractor's actions during this time.

#### Contact/Initiate DCAA Audit

Cost-reimbursement contracts require a continuous Defense Contract Audit Agency (DCAA) review of expenditures. DCAA should be notified of the special project schedule soon enough to mobilize a team of auditors. If possible,

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\*See Cost Reimbursement Type Construction Contracts Course, Huntsville Division.

DCAA should be fully in place when the contract is awarded. If not, it may be some time before the auditors can complete the catch-up work. Delayed audit reports that identify disallowances can create substantial claims at close-out. Thus, every effort should be made to insure that facilities and support for DCAA are included in premobilization planning.

#### Develop Subcontract Plan

After the contract award, one of the first tasks of the prime contractor is to develop a subcontracting plan. The scope of this plan includes services performed, material furnished or used to perform services, and workmanship of services. This plan must identify how the prime contractor plans to obtain the necessary resources or service. Critical items requiring a long leadtime must be specifically identified. The Corps must review and approve subcontracts for cost-reimbursement contracts.

#### Order Critical Leadtime Items/Establish Design/Purchase/Construct Interface

Labor, material, and equipment required for fast-track special projects must be identified early. If the completion schedule is compressed, some critical long-leadtime items must be ordered before the design is complete. Engineering estimates must be made and coordinated with the designers to insure that procurement is complete before the materials are needed.

Past PMs have recommended that the contractor establish a design/purchase/construct interface organization to minimize these problems. It should be noted that interface problems are not limited to long-leadtime items; for example, doors and windows have been problem areas in past special projects.

## 4 PURCHASING

Since special projects are typically large in scope and short in duration, they place a large burden on both the purchasing system and the logistics network. Clearly, a well-planned and well-operated system is required if the required materials and equipment are to be available at the construction site when needed.

With a fixed-price contract, the purchasing/logistics problem is the contractor's. However, with a cost-reimbursement contract, the Corps must actively review the contractor's performance. Since materials and equipment can be the largest cost component,<sup>6</sup> it makes sense to insure that purchasing is as economical as possible. It has also been estimated that more than 6 percent of a project's labor cost (25 percent of total) can be saved by having materials and equipment available at the site at the required time.<sup>7</sup> Thus, it is in the Corps' best interest to insure that procurement is timely.

Figure 4 presents a generalized purchasing action plan which starts before contractor selection. The action party can be either the Corps or a contractor after award, depending on the desires and/or capabilities of the Corps. It is important to note that successful purchasing actions will not occur unless a detailed procurement plan is executed. This action must start at the very beginning of the special project.

### Premobilization

Purchasing activities during premobilization vary, but revolve around Corps employee selection and recruitment, development of a purchasing tracking system, and review of a contractor's purchasing system.

#### *Corps Personnel*

Cadre personnel should have extensive purchasing experience. The ideal candidate would have the appropriate contract experience and would be interested in a permanent SP position. An adequate overlap between cadre and permanent employees should be scheduled. The cadre employee's supplying organization should also make a TDY availability commitment for the first part of mobilization.

#### *Purchasing Tracking System*

Use of an integrated purchasing tracking system should be considered. Ideally, the system would track the equipment/material from Bill of Material, through procurement, to receipt and issue to the project, and then input data into the cost accounting system. Use of such a system by the contractor is highly recommended.

<sup>6</sup>In CONUS industrial, commercial, and power plant construction in 1979, installed materials and equipment constituted 60 percent of project cost. See Report A-6 Modern Management Systems, Business Round Table, November 1982, p 24.  
<sup>7</sup>Report A-6, p 24.

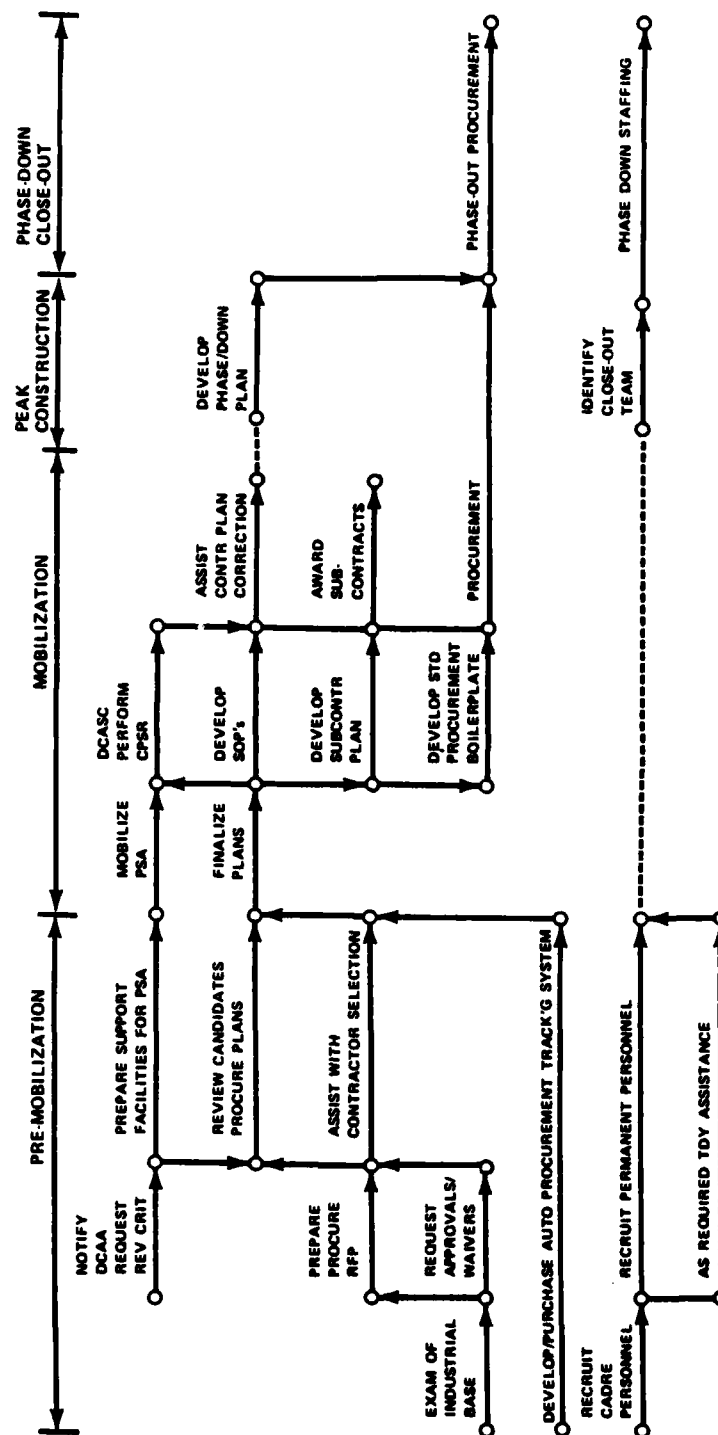


Figure 4. Special project procurement.

## *Review of Contractor's Purchasing System*

An assessment of the host country's industrial base, along with the conditions stipulated in the country-to-country agreement, should be used to develop a general purchasing plan. This information should be used to develop the Request for Proposal of a purchasing plan from candidate contractors. Any required special waivers should be submitted concurrently. Examples of possible waivers include sole-source purchasing and exemption from "buy American."

The proposed purchasing plan should be an important factor in selecting a contractor for a cost-reimbursement contract. In this document, the contractor should provide a detailed description of the proposed organizational element and operations procedures. A Purchasing System Analyst (PSA) must perform the Contractors Procurement System Review (CPSR) before purchasing begins. This will insure that the contractor complies with Federal Acquisition Regulations (FAR). Timely completion of CPSR requires that the Defense Contract Audit Agency (DCAA) be notified early of the PSA requirement and of the availability of required support facilities for DCAA personnel.

### Mobilization

Mobilization begins after contractor selection. During this time, the contractor should be finalizing and implementing the purchasing plan. The CPSR will be done concurrently. The contractor must correct any identified deficiencies immediately. Past PMs have indicated that contractor purchasing personnel typically are not familiar with FAR procedures and restrictions. For example, Israeli Air Base (IAB) personnel were forced to train a large percentage of contractor purchasing personnel.

Other activities during mobilization should include development of purchasing SOPs, formulating a subcontracting plan, and development of a standard purchasing "boilerplate."

### Peak Construction

A phase-down purchasing plan should be developed during peak construction. The plan should identify when to stop routine purchasing actions so as to minimize inventories remaining at SP completion. This is the latest time that the purchasing close-out team should be identified. The PM should insure that this team has the necessary continuity, since this will be a key requirement during contract close-out.

### Phase-Down/Close-Out

Activities during this period are limited to monitoring and validating the need for late procurement actions. All requirements should be compared against inventories to insure that the need cannot be satisfied from in-country stocks since last minute purchasing actions with express shipments tend to be very costly.



## 5 PLANNING AND CONTROL

Successful special project completion can be assured through good planning and control. The recommendations provided in these areas were obtained from results of the CERL questionnaire and from the workshop.

### Early Activities

A wide range of preplanning activities should be done before a detailed project plan is developed.

#### *Project Definition*

The PM will need a definitive statement on the scope of the special project. Although this seems obvious, a firm scope on a fast-track project may not be available until some time after construction begins. (As substantiated by the CERL questionnaire, obtaining adequate project scope was the number two problem during mobilization.)

Another important consideration is the relative importance of quality, cost, and completion date. It is important to note that the key players involved with the special project may view the importance of these factors differently. Therefore, the PM may receive conflicting guidance on where the emphasis should be placed. The owner may stress quality, whereas the buyer (who may be different from the owner) may stress quick completion. The PM should not be surprised when this occurs and should, if possible, have a plan of action to respond to these pressures.

Other important information that a PM requires early in the project is the required facility turn-over sequence. Budget costs for the WBS are also necessary to track contractor performance.

#### *PM Charter*

The authority and responsibility of the Corps PM should be clearly defined. The overall Corps responsibility should be defined within the country-to-country agreement. Clear definition of the responsibilities of the Corps, the host country, and the buyer will greatly reduce operational problems during construction. Chapter 7 outlines specific topics to be covered in the country-to-country agreements.

For a large special project, the SP should be considered as a mini-division reporting directly to OCE. Experience has shown that assigning the PM to an existing Division does not work well. A large special project will be subject to a high level of interest by the host country. Therefore, the PM should have considerable authority and should be, at minimum, of the same rank as the local external reviewer. Thus, the PM should be linked directly with OCE. The SP will also probably require a timely response to problem solving; a reduced level of management layering will support this need.

During project design and construction, it is important to identify the Corps' relationship with the ultimate owner. Past experience suggests that once the owner defines the facility requirement, his/her role should not be an

active one until the turnover inspection is required. Allowing active owner participation during design and construction is not recommended, since this will encourage numerous change orders. Cost plus contracting, however, does require user participation in a review capacity (see Chapter 10).

### *Feasibility of the Job*

A rough assessment of the technical risk associated with the SP should be made during early activities. For example, does the requirement push the state of the art, or can it be satisfied by standard designs and/or pre-engineered buildings? Results of assessment can be used to examine the time and cost constraints specified during the country-to-country agreement.

### *Program Coordinator*

Israeli Air Base participants have suggested that a Special Assistant to the Director of Engineering and Construction be assigned to the SP during the early phase. This person would act as a Special Project Coordinator, responsible for coordinating between Divisions, OSD, Department of State, and other agencies that negotiate with the host country. The key function would be to insure that information from the country-to-country negotiations reaches the project planning team and vice versa.

### *Schedule*

Appendix D provides an overall checklist of items to be included in the project schedule. Several other detailed schedules should also be prepared to help project management in the following areas:

1. Material/equipment purchasing
2. Subcontracting schedule
3. Contractor employee phasing
4. Corps employee phasing
5. Facility construction schedule
6. Facility turn-over sequence
7. Phase-down schedule.

### Management Information System Requirements

Putting a working management information system (MIS) in place in a remote site is very difficult. To manage effectively, the PM needs accurate information as soon as the project starts.

In past SP efforts, fielding of an integrated automated MIS or even stand-alone modules such as inventory control has not been successful. Although many reasons have been cited for this lack of success, the underlying common problem area is lack of initial planning. If an automated MIS is not

fully thought out and tested before deployment, it is very hard to develop and field a system while the SP is in progress. The following actions are recommended before SP begins:

1. Define data elements/systems to be automated.
2. Incorporate requirements in contract specifications.
3. Require contractor to demonstrate the required system as a preselection criterion.
4. Validate that the system(s) will run on available hardware.
5. Require the system to be fully operational before construction begins.

During the definition phase, every effort should be made to use existing software. It is far better to select a working system that is not quite what is desired than to begin a lengthy development of a customized system. Since time will no doubt be critical, the system (manual and/or automated) should be "frozen" once the MIS requirements have been defined. This will minimize the requests for reporting changes, which create more work. To insure that the MIS will interface with the accounting system, it is important to include the Resource Management personnel in the definition stage.

It should also be noted that a financial incentive may be necessary to encourage the cost-plus contractor to field a system quickly.

It is suggested that the MIS include as a minimum:

1. Integrated purchasing/inventory control module
2. Network Analysis System (NAS)
3. Interface between contractor and Corps hardware

The system must use a work breakdown chart of accounts which allows budgeted amounts to be compared with expenditures, and remaining obligations to be estimated. It is suggested that Cost/Schedule Control System Criteria (C/SCSC) be followed.\*

#### Performance Analysis

The degree to which the Corps performs detailed contractor performance analysis depends upon the type of construction contract. FFP contracts require a minimum of performance analysis; efforts are usually concentrated on approving partial payments, evaluating the QC/QA effort, and monitoring completion time.

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\*See Performance Measurement for Selected Acquisitions, DOD Instruction 7000.2, (Department of Defense, June 10, 1977).

On a cost-reimbursement contract, the contractor and the Corps function as a team. The Corps insures that the SP meets the requirement, is completed in time, and is completed within budget. To do this, the Corps must maintain a constant overview of all contractor activities, such as:

1. Following contract provisions
2. Abiding by SOPs
3. Maintaining an estimate of the current cost to completion
4. Maintaining current values of data elements in MIS
5. Maintaining current NAS of the SP
6. Preparing Work Authorization Document (WAD) estimates
7. Submitting work orders against WAD
8. Conducting staffing surveys and manpower use evaluations
9. Auditing payroll and reimbursement vouchers before submission
10. Reconciling financial accounts periodically
11. Maintaining insurance programs and physical security programs
12. Executing QC program
13. Managing personnel according to recruiting agreements
14. Maintaining an active safety program.

#### Resource Management

The source of construction funds, customer constraints, and the imposed regulatory constraints will determine the functions and size of the Resource Management Office (RMO). Another important decision is whether the finance and accounting system will be automated or manual. As soon as these decisions are made, personnel should be recruited. The RMO should be staffed early, since it is an important contributor during the planning, definitization, and negotiations.

RMO personnel must insure that all required cost accounting data elements are in the contractor's MIS. If not, a great deal of manpower will constantly be required to assign costs.

Planning for a DCAA audit should be initiated so the auditors can start work when the SP begins. If not, a catch-up action will be required. This is difficult, because many of the purchasing actions typically occur very early in the project.

Establishing a new disbursement office is difficult and time-consuming. It may be more reasonable to use the services of an existing disbursement office. Approval of the disbursement office and development of standard operating procedures are required before purchasing can begin.

## 6 DESIGN/ENGINEERING/CONSTRUCTION

Several areas have been identified which should be considered for future projects.

### Innovative Design Approaches

Since SP tend to be fast-tracked or at least short-duration projects, innovative design approaches should be considered. If full compliance with U.S. standards is not required, many expedient approaches may be possible. For example, several innovative designs were selected for the Multinational Force and Observers in the Sinai Desert facilities:

1. Reduction of electrical load requirements:
  - a. Solar panels were used for heating water.
  - b. Gas appliances were used as much as possible in dining facilities.
2. Reduction in facility complexity:
  - a. The originally designed fire alarm system was too costly and complex in relation to the cost of the facilities.
  - b. Centralized bath facilities were used.
  - c. Bottled water coolers were installed in the barracks. This eliminated the need to install pressurized water lines to the barrack buildings.
3. Use of locally available materials and relaxation of specifications allowed cost-effective expedient construction of roads.
  - a. Double bitumin and local stone chips were used at one site.
  - b. Existing silt roads were stabilized with a salt brine at another site.

These examples show that a variety of novel designs/solutions to SP projects are possible. The PM should encourage innovation.

### Purchase of Construction Equipment

It is recommended that construction equipment be purchased even for short-term cost-reimbursement contracts. For multi-sites or multi-contractors standardized equipment should be used. This will reduce the required spare inventory size. Rental equipment was used on the Sinai MFO Housing Project and was found not to be cost-effective. The agreement required use of contract operators whose productivity was low. Longer than normal downtime was also observed.

Quantities of purchased equipment should include some spare items to offset the maintenance requirement. Nondeadline equipment maintenance can be done during off-hours. Current planning figures for maintenance of major equipment are 0.7 maintenance man-hour per each operating hour.<sup>8</sup>

#### Purchase Quality Handtools

On a cost-reimbursable contract, it is recommended that the contractor be required to purchase quality handtools that meet U.S. specifications. Locally procured tools in third-world countries are often very expensive and of poor quality. Excessive breakage often occurs, which requires frequent replacement.

#### Design/Purchase/Construct Interface

Past experience has shown that during a short-duration SP, a key problem is often lack of needed materials/equipment during construction. The interface between the designer, the procurer, and the constructor requires intensive management to insure that the designer specifies the equipment and materials in enough time to procure and supply them to the construction site. It is not always large and complicated building components, such as heating, ventilating, or air conditioning systems, that are the problem areas. For example, the lack of doors and windows for the Israeli Air Base project was a significant problem.

To solve this problem, it is recommended that the contractor be required to establish, within his/her organization, an element specifically charged with managing the design/purchase/construct interface. This organizational element must be of a high enough level to resolve any problem areas that might occur. It must:

1. Insure early staffing of purchasing personnel.
2. Require a Bill of Materials to be initiated early in the design.
3. Begin procurement at the 60 percent design level.
4. Facilitate coordination among designers, purchasing personnel, and constructors.
5. Insure that all customs clearances and duty-free approvals are obtained in a timely manner.
6. Review the experience and capabilities of purchasing personnel. Provide training as required.

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<sup>8</sup>Major equipment includes loaders, trucks, dozers, etc. C. W. Hoffman, "Alaskan Super Project," Planning, Engineering and Constructing the Super Projects (American Society of Civil Engineers, May 6, 1978), p 366.

7. On a cost-reimbursement contract, insure that FAR requirements are met.

8. Monitor the completeness and accuracy of as-built drawings and vendor information.



## 7 COUNTRY-TO-COUNTRY AGREEMENT

The country-to-country agreement is the key document for defining the SP scope of work and the support to be provided by the host country. This document must be specific. Besides a clear definition of the scope of work, many other factors must be incorporated, ranging from taxes on imported items to the use of local labor and material.

### Operation Factors

The following\* is a checklist for reviewing the operation content of the country-to-country agreement.

1. Applicable law and procedure
  - a. Are participants expected to honor host country's laws?
  - b. Abide by U.S. laws also?
  - c. Who enforces the law? (COE?)
2. Design/construction responsibility

Identify responsibilities of both technical and review approval.
3. Personnel
  - a. Responsibility for selection, approval, and removal
  - b. Third-world country workers restrictions
  - c. Ability for in-country travel
  - d. Allowances/restrictions on privately-owned vehicle/household goods, taxes, duties, and mail
  - e. Employment of host-country personnel
  - f. Training of host-country personnel
4. Port of entry

Responsibility for clearances, permits, and visas
5. Removal of excess material and equipment
6. Use/access of facilities
  - a. Land/material resources

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\*Sources (Saudi Arabia and Ras Banas country-to-country agreements).

- b. Use of aircraft
- c. Use of telecommunications
- 7. Contracting authority
  - a. Who has contracting authority?
  - b. Who reviews and approves contracting authority?
  - c. Review/approval of subcontractors
  - d. Degree of responsibility for claims/disputes
- 8. Security responsibilities
- 9. Support and administration
  - a. Required staging and storage areas
  - b. Food
  - c. Lodging
  - d. Postal service
  - e. Personnel
- 10. Methods of Project Payment

#### Program Coordinator

An active Special Project Coordinator is necessary to insure that the country-to-country agreement is adequately staffed. This will insure that all important topic areas are covered in adequate depth.

## 8 CIVILIAN PERSONNEL

Historically, recruiting fully qualified personnel for a special project has been a major problem. The Corps generally lacks a large labor pool with overseas special project experience. Another problem is that few people have had cost-plus project experience; this type of experience is important, since the management philosophy is much different than for a firm fixed-price project.

Historically, personnel turnover has also been a significant problem throughout a project. During the initial design/construction, there are problems when employees are dissatisfied with the overseas environment or perform inadequately. At the mid-term timeframe (peak construction), initial tours often end and replacement employees arrive. Clearly, this is "hard" on the organization.

The top four identified personnel problems cited on the questionnaire were: (1) obtaining qualified personnel, (2) availability of accompanied status, (3) condition/availability of life support, and (4) "adjustment" of employees/family.

### Cadre Personnel

Many of the Corps SP are begun by a small group of experienced short-term personnel. They are the first to be replaced by duration employees during mobilization. However, this transition is not always smooth. Although the best approach is obviously to have the cadre employees become the duration employees, this is not always feasible. Therefore, the PM should try to select cadre employees who express interest in a permanent assignment.

Another criticism of cadre employees is that they leave too early. Therefore, a commitment should be obtained from the supplying agency that these personnel will be available until replaced and on an as-needed TDY basis during mobilization.

### Recruiting Incentives

Involvement in an SP should be considered a choice assignment which offers significant career enhancement possibilities. Unfortunately, this is not always the way the SP is presented to prospective employees.

By its very nature, an SP requires top-quality personnel. The Corps should identify and maintain an experienced pool of personnel qualified for SP assignment.\* Since there is no formalized list of previously identified experienced personnel, the PM must obtain nominations from past PMs and top management at OCE.

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\*Until recently, the Corps made an effort to do this with the Redi District Concept (Engineer Regulation 1-1-190, 12 April 1980). This was not successful, so the concept was cancelled.

At the outset of the job, OCE should specifically state the relative importance of the SP. The more critical the job, the more attractive the pay and fringe benefits should be to insure that high-quality personnel will apply. The PM should insure that high grades, accompanied status, and potential career advancement are Corps awards. Submission for high grade approvals should be expedited, since the top grades should be recruited first.

#### Top-Down Recruitment

Experience with the Israeli Air Base Program suggests that the PM should form the organization, using a "top-down" approach. The key managers who can work well with the PM should be selected first. They, in turn, should select their personnel. This procedure takes a bit longer than delegating selection to a personnel staffing specialist; however, it reduces the probability of incorrect employee selection. The PM should keep in mind that replacing an employee is difficult and may take a great deal of time. For a short-duration project, time may be so short that replacing employees may not be feasible. Therefore, well-thought-out selection criteria should be established and applied.

#### Contractor Personnel

On a cost-reimbursement contract, the PM should require that the prospective contractor commit qualified key personnel for the life of the contract. Employee performance should be monitored during the life of the contract, and termination recommended, if necessary. The PM should review the contractor's personnel and practices periodically and recommend corrective action as required.

#### Phasing of Personnel

The required quantity and type of personnel will change over time with any construction project. The PM should insure that there is an adequate manpower plan for both contractor and Corps personnel. This plan should be updated periodically. Part of the planning process should address maintaining continuity in various key positions. If retention throughout the entire project is not desired or possible, an adequate overlap should be scheduled.

In the Israeli Air Base Program, a large number of positions were turned over during peak construction. Careful review of overseas employment contracts and proposed construction schedules should be made. Tour lengths should be adjusted at the beginning of the project, not just before the incumbent leaves. Military tour lengths should also be examined.

#### Remote Site Effect

A completed package of allowances and benefits should be established before recruiting. During recruiting, employees should be frankly informed of the expected working and living conditions. If this is not done, a high turnover of disillusioned employees may result. The lack of accompanied tours

will severely restrict the available pool of potential candidates. Thus, every effort should be made to have as many accompanied positions as possible.

Life support functions should be put in place first and be operational by the time the first permanent party members arrive. The PM should review the distribution and availability of amenities. Fair treatment to all must be the prime operating concept. If this is not maintained, there will be a rapid breakdown in employee morale.

### Benefits

The recruitment package furnished to each candidate should include definitive statements about the following:<sup>9</sup>

1. Availability or unavailability of Government quarters.
2. If government quarters are available, detailed information on size, location, waiting period, and availability of household furnishings.
3. If economy quarters are to be used, detailed information on type, size, location, cost, and availability of Government furnishings.
4. The current living quarters allowance, post differential, and any other monetary allowance.
5. Travel of dependents. If dependents are authorized and concurrent travel is not allowed, an estimate of the waiting period should be specified.
6. Authorization for trips home during tour of duty.
7. Personal telephone calls at Government expense.
8. Authorizations for shipment of household goods, hold baggage, and excess baggage. Also included should be a statement of whether temporary and/or nontemporary storage is authorized.
9. Whether shipment of a privately owned vehicle at Government expense is authorized.
10. An indication of the approximate percentage of TDY required.
11. Any special training, experience, or physical requirements of the position.
12. Information on the duties of the position, functional requirements, and environmental information needed to complete item 3 and item 4, part B, SF 78 (Certificate of Medical Examination).

<sup>9</sup>Requesting Recruitment Action for Overseas Positions, AR 690-300 301.5, Appendix S (Department of the Army, 15 October 1979), p C-14.

13. Detailed orientation information that frankly assesses the facilities; environment; tour of duty; mission of the organization; relation of job to mission; location of the job; climate; recommended type of clothing required; driving information, automotive facilities, insurance, gas availability/cost; availability of medical and recreation facilities; use of post exchange and commissary; method of travel to final destination; and any other pertinent information.

### Training

Some SPs require the training and use of local national employees. The impact of this requirement (if one exists) should be assessed early so that appropriate training facilities can be put in place early in the SP.

## 9 OFFICE/PROJECT MANAGER OPERATIONS

Surveyed personnel cited office/PM operations as an SP problem area. Issues can be divided into three areas: office procedures, organizational structure, and PM techniques.

### Office Procedures

Standard operating procedures (SOPs) should be developed early and agreed on by both the Corps and the contractor. In some cases, it may be timely to have these SOPs developed by contract since the Corps does not maintain an on-the-shelf package. The following are suggested topic areas for SOPs:\*

1. Employment of local nationals
2. Charter flights
3. Vehicle licenses and highway use
4. Quarry acquisition and operation for stone, sand, and gravel
5. Customs clearance of operational equipment
6. Entry and exit procedures
7. Method of progress payment
8. Use of military flights in host country
9. Design development, review, and approval
10. Procurement procedures for purchase of materials, equipment, and services.
11. Visits to construction sites
12. News media inquiries
13. Customs clearance of personal effects and household goods
14. Configuration management
15. Use of host country flag vessels
16. Control of photography of sites
17. Controlled entrance to construction

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\*Developed from Israeli Air Base SOPs.

18. Customs clearance of goods purchased from approved host country importers
19. Classification of project drawings
20. Shop drawings and material and equipment submittals
21. Transportation and control of commissary/issue items
22. Evacuation of injured personnel by helicopters and planes
23. Tax exemptions and reimbursements on account of local purchase
24. Government furnished/retrograde equipment
25. Visit of distinguished visitors other than host country and U.S. personnel
26. Light aircraft traffic clearance from blasting operations
27. Marine insurance
28. Telephone conduit installation
29. Income tax of corporations and individuals
30. Transfer of defense articles and services (equipment and material)

Additional office memorandums, such as those shown below (by title and subject), should also be prepared.\*

1. Transportation and Travel:

Control of Corps of Engineers Use of Host Country Air Force Flights  
Recreational Use of Government Owned Contractor Operated Vehicles  
Cargo Truck Tracking System

2. Research, Development, and Acquisition:

Configuration Management

3. Communications-Electronics:

Telephone Communications (Official and Personal)  
Communication Economy, Program Support and Message Preparation

4. Military Police:

Physical Security and Crime Prevention  
Crime, Incidents, and Law Enforcement Activities Reporting

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\*Developed from Israeli Air Base Office Memorandums.



5. Installations:
  - Commercial Solicitation
  - Assignment, Utilization, and Termination
  - Dependent Family Housing Security Survey
  - Assignment of Living Quarters
6. Field Organizations
  - Staff Duty Officers
7. Military Publications:
  - Publications Media
8. Management Information Control:
  - Management Information Control System
9. Office Management:
  - Office Symbols
  - Correspondence
  - Records Management
  - For Official Use Only Information
  - Mail Management and Courier Service
10. Army Information:
  - Protocol
11. Security:
  - Subversion and Espionage Directed Against the U.S. Army (SAEDA)
  - Information Security Program
  - Protection of Host Country "Restricted" Information
12. Facilities Engineering:
  - Situation Reports (SITREPS)
13. Personnel-General:
  - Passports, Visas, and In-Country Clearances
  - Sponsor Program
  - Military Personnel Procedures
14. Personnel Identification
  - Identification Cards, Tags, and Badges
15. Personal Affairs:
  - Voting

### *Office Automation*

For a short-term remote project, only specify proven hardware/software combinations. Development of tailored office automation systems usually takes much longer than anticipated and often does not provide all the expected benefits. This topic should be covered in a preaward agreement.

### *End-of-Day Field-Level Planning*

The Sinai MFO project had good results with a half-hour field-level planning meeting at the end of each work day. This approach opened and maintained communications between the Corps and the contractor managers.

### *Library/Office Supplies*

An initial issue and means of resupplying standard forms should be available at start-up. A complete reference library should also be collected and forwarded as early as possible.

### Organizational Structure

Based on past experience, a change in the special project should be expected. It is about four times more likely that an SP will be increased rather than decreased in scope (52 percent to 12 percent). The PM should anticipate a change in authority, responsibility, and the element to which he/she reports.

### *Definitization/Negotiation Team*

As mentioned in Chapter 3, if a cost-plus contract is used, a separate definitization/negotiation team should be established. A fulltime liaison is required between operations and the definitization team to insure that the team is kept up-to-date on daily operational decisions which will affect negotiations. This is important, because a large number of claims result from changes from the definitization agreements that were made in the field and not recorded. Thus they were unknown to the definitization team. Hence complete written documentation is essential. At the end of definitization, a modification to replace the letter contract with either a firm-fixed-price or cost-reimbursement type contract is required.

### *Staff for Life Support*

It is recommended that a life support staff element within the Corps organization be considered. Even though a management support contractor may be tasked with life support, a central Corps focal point may be desired.

### *Organizational Elements*

The actual configuration of the organization depends on many factors, such as size of job, degree of CONUS support, percent completion, type of SP, location of SP, etc. A change in organization structure and staffing level should be expected. The PM should periodically review current activity level and responsibilities and make the appropriate organizational adjustment.

Appendix E provides an example of past organizational structures for a medium-sized SP (\$90 million) and a large SP (\$2 billion).

## PM Techniques

### *Limit Change Requests*

Because of timing requirements, large SPs are normally begun before all the planning and design has been completed. This prompts the excessive use of change orders, which not only increase the project cost, but also make the completion schedule harder to meet. For the Israeli Air Base Project, a point was reached (change order number 950) where a freeze was issued to assure that the project was completed on schedule. It is strongly recommended that a policy be established at the beginning of the SP to limit the change orders to only those that are of a "fatal" nature.

### *Document All Estimate at Completion Changes*

At the beginning of an SP, the management emphasis tends to be "completion on time." When it becomes apparent that the completion date will be met, the management emphasis then shifts to "cost." If effective cost controls are not implemented at the beginning of the SP, they will be very hard to implement later. Thus it is recommended that the cost implications of all change orders be recorded. A complete file on each change order is necessary for good management and as a reference in case of a claim.

### *Insure an Effective QC/QA Program*

In the rush to complete on time, care must be taken that quality control/quality assurance (QC/QA) is not forgotten. The contractor's QC performance must be reviewed periodically by an adequately trained and staffed Corps QA element. It is important that the QC/QA programs be put in place at the beginning of construction. The contractor's QC requirements should be clearly stated in the contract specifications.

### *Turnover/Close-Out Planning*

Planning for facility turnover and SP close-out should begin during peak construction. The close-out team and a phase-down personnel plan should be identified early. Staff positions that require continuity should also be determined.

### *Offer User O&M Support Package*

When the project begins, the PM should consider offering the user an O&M support package, on a reimbursable basis, for a limited period of time after turnover. An O&M team would do initial maintenance and train host-country personnel. Cancellation of this agreement by either party should be an option.

## 10 CORPS/CONTRACTOR RELATIONS

The Corps/contractor relationship will be dictated by the type of contract. If a fixed-price contract is used, the business relationship is much as it would be in the Continental United States (CONUS). However, if there is a cost-plus relationship, a team approach is required.

Since on a cost-plus contract the contractor is paid for his/her efforts, regardless of results, there must be effective communication between the Corps and the contractor. On past SPs, the timeliness and quality of the contractor's reports was cited as a problem area. As indicated in Chapter 5, there must be early definition and agreement on reporting. If this occurs, the number of problems in this area should be reduced.

Flexibility is the key to a successful cost-plus contract. The PM should be willing to resolve any problem with the contractor using any workable method to reach the desired results. Some deviations from the approved plans and specifications should be anticipated, since there will be many unknowns on the SP. If the PM and the user are not flexible,\* the SP will not be completed in the most cost-effective manner. Clearly, any changes in SP scope or execution should be cleared with the user. Client personnel should always be aware that they are being charged for resources expended by the contractor. If the final configuration meets performance requirements, but is less expensive, it does not mean that the client will be charged for something he does not receive. Conversely, when the client insists on expending excessive effort to exactly meet approved plans, he is wasting his own funds.

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\*The term "loose, not limp" has been mentioned as the degree of flexibility for the Israeli Air Base Program.

## 11 TRANSPORTATION

Remote construction sites offer a challenge to the logistic network of the host country. An early assessment of the in-country logistic network will be required, since a large amount of equipment and material will arrive early in the project. The PM must take action to receive these resources quickly and insure their prompt transportation to the correct construction site(s). Consideration should be given to the factors discussed in the following sections.

### Port of Debarkation/Embarkation

The port's on- and off-loading capabilities should be examined. Haul time (distance to construction site) and any required improvements should be identified and used as a rationale for port selection.

### Method of Transportation

Policies should be established for defining what transportation method will be used. The criteria for selecting between surface and air transportation should include measure of urgency, the associated cost, and the level of approval required.

### Host Country Transportation Net

The capabilities of the required host country transportation resources should be fully determined. Both the condition of the roads and rail networks as well as the availability of host country vehicles and operators should be assessed.

### Border Crossings

The country-to-country agreement should address to some extent the rights extended to import and export construction-related commodities. Specific action plans should be established and the personnel required should be determined. The need for a local freight handler/expediter should be evaluated.

### Method of Shipment

Break bulk versus containerization should be examined. The latter method is desirable, because it will reduce delivery time as well as loss and damage; however, the port's material-handling capabilities may prevent the extensive use of containerization.

## 12 GENERAL RECOMMENDATIONS FOR FUTURE SPECIAL PROJECTS

Besides the detailed recommendations identified in the preceding text, the following general recommendations should be approved by the Office of Chief of Engineers prior to the next special project.

### Premobilization

Effective participation in future special projects requires substantial Corps planning before notification of involvement. Until recently, Engineering Regulation (ER) 1-1-190 established a readiness to activate three districts from a predetermined nucleus of cadre individuals (Redi Districts). This document also contained a checklist of actions/responsibilities associated with mobilizing a Redi District.

The Corps Redi District managers found it very difficult to maintain a current list of precommitted individuals who could depart on short notice to an overseas assignment. As a result, the ER was rescinded. However, the general concept of a pre-identified deployable organization is a good one and re-instituting this concept should be considered. Following are several recommended modifications to the old Redi District concept:

1. Large special projects are best managed by a mini-division concept that is directly attached to OCE (i.e., a Redi Division concept). Maintenance of this concept could be assigned to the Corps Engineering and Construction Directorate (DAEN-EC) or a lead division.

2. One way of keeping the pre-identified personnel listing current is to incorporate a statement of special project availability into an employee's annual SKAP appraisal. This will allow District and Headquarters to determine acceptability of the personnel during the normal annual review process.

3. An expanded support package should be developed. DAEN-EC should maintain and require updating of files by SP close-out teams of the following:

- a. Past SP organization diagrams
- b. A set of standard operating procedures
- c. A file of "lessons learned" documents from each SP
- d. A personnel listing of each past SP.

The nucleus for this file should be obtained from the two recently completed special projects (Israeli Air Base Project and Sinai Multinational Force Construction Project). DAEN-EC should insure that past commanders or close-out teams submit this information before it is no longer recoverable.

4. Lessons learned from large-scale CONUS jobs such as the wind tunnel at Arnold Air Force Center and the Shuttle Assembly Building at Vandenberg Air Force Base should also be collected and incorporated both in this handbook and in Huntsville training courses in project management and cost-plus contracting.

## Mobilization

A key contractor selection element should be a demonstrable management information system and purchase tracking system. Promises to modify an existing system or to develop a new system should not be accepted. Only contractors who have an acceptable existing operational systems should be considered. Past experience has shown the importance of having an acceptable, operational reporting system during mobilization.

Wherever possible, the Corps should establish a policy of using earned value for construction management. This concept is encouraged by DOD Instruction 7000.2<sup>10</sup> because it provides a very effective way to measure contractor performance. Traditionally, DOD application of this concept has been in non-construction fixed-price contracts. On a cost-reimbursement type of contract, earned value could be integrated into the monitoring of performance against agreed-upon tasks authorized by a Work Authorization Document (WAD).

The applicability of using DOD-approved Cost/Scheduling Control System Criteria (C/SCSC) should also be examined indepth.

## Peak Construction

Typically, a large special project involves a high level of funding. During peak construction, very large amounts of fixed and variable expenses are involved; complicated Corps decision-making channels are time-consuming and also increase project cost. Thus, the Corps should insure that the PM is of a high enough level (General Officer) to make the required timely decisions in-country.

## Close-Out

Currently, turnover provides the owner with only equipment manufacturers' literature and some spare parts. The facilities may be unique in the host country, and adequately trained operation and maintenance personnel may not be available. Therefore, the Corps should make it a policy to offer the user the option of a "stay-behind" operations and maintenance team. This will greatly facilitate project turnover. This option can offer the host country an interim trained O&M team until the in-country infrastructure can be developed.

<sup>10</sup>Performance Measurement for Selected Acquisitions, DOD7000.2 (Department of Defense, 10 June 1977).

APPENDIX A:

SPECIAL PROJECT QUESTIONNAIRE RESULTS

*Summary of Responses*  
SPECIAL PROJECT QUESTIONNAIRE

I. Background

1. Name: \_\_\_\_\_

Current Position: \_\_\_\_\_

Current Address: \_\_\_\_\_

Current Telephone: \_\_\_\_\_

2. Name of large-scale construction projects in remote areas (special projects) you have been involved with:

	<u>Special Project Name</u>	<u>Number</u>	<u>From (Mo/Yr) -- To (Mo/Yr)</u>
1	<u>Israeli Air Base</u>	<u>45</u>	
2	<u>Sinai MFO</u>	<u>12</u>	
3	<u>Saudi Arabia</u>	<u>14</u>	
4	<u>Honduras RDF</u>	<u>5</u>	
	<u>Others</u>	<u>16</u>	

3. What was the magnitude of the special project(s) you were involved with?

<u>Special Project</u>	<u>Approximate Total Dollar Value</u>	<u>Type of Contact*</u>	<u>Number</u>
<u>1</u>	<u>                    </u>	<u>FFP</u>	<u>25</u>
<u>2</u>	<u>                    </u>	<u>CPFF</u>	<u>56</u>
<u>3</u>	<u>                    </u>	<u>Other</u>	<u>3</u>
<u>4</u>	<u>                    </u>	<u>Combinations</u>	<u>6</u>

\* Firm Fixed Price (FFP)      Cost Plus Incentive Fee (CPIF)      Other (Specify)  
Cost Plus Fixed Fee (CPFF)      Cost Plus Award Fee (CPAF)



4. What was your involvement with the special projects? (Check as appropriate.)

	Incountry Field Office	Incountry Dist/Div	US Dist/Div
Project Mgmt	_____	_____	_____
Engineer	_____	_____	_____
Construction	_____	_____	_____
Resource Mgmt	_____	_____	_____
Counsel	_____	_____	_____
Procurement & Supply	_____	_____	_____
Safety/Security	_____	_____	_____
Administrative Services	_____	_____	_____
Personnel	_____	_____	_____
Reporting (progress, F&A, etc.)	_____	_____	_____
Other (specify)	_____	_____	_____

5. Please indicate exact position(s) held during special projects.

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_

6. In your estimation please rank the top ten (1-10) areas most likely to have problems during the special project.

	Likelihood For Problems
Office/PM Operations	<u>9</u>
Counsel/legal	<u>      </u>
Public Affairs Office	<u>      </u>
Safety	<u>      </u>
Civilian Personnel	<u>5</u>
Admin. Services	<u>      </u>
Resource Mgmt Office	<u>      </u>
Security	<u>      </u>
Communications	<u>7</u>
Construction	<u>6</u>
Engineering/Design	<u>3</u>
Purchasing and Contracting	<u>1</u>
Transportation	<u>11</u>
Planning and Control	<u>2</u>
Area Offices	<u>      </u>
Country-to-Country Agreement	<u>4</u>
Corp/Contractor Relations	<u>10</u>
Other (specify)	<u>8</u>

The following questions may not all be answerable based on your experience. If a particular subject area is outside of your experience sphere, please leave this section blank. If, on the other hand, your experience covers more than one special project, please answer in terms of your overall experience.

## II. Mobilization

1. Were the guidelines of ER 1-1-190 (Establishment of REDI District) utilized in mobilization for the Special Project you were involved with?

Yes 2.0%                      No 44.9%                      Don't Know 53.1%

- a. If not, was another guide used?

Yes 2.4%                      No 31.0%                      Don't Know 66.7%

- b. If yes, please specify. \_\_\_\_\_

2. Was a small group of experienced, short-term (cadre) personnel utilized to initiate the project?

Yes 78.2%      No 14.5%      Don't Know 7.3%

- a. If cadre personnel were utilized, was the transition to "duration personnel" a smooth process?

Yes 45.8%      No 39.6%      Don't Know 14.6%

3. What, in your opinion, were the five major problems in mobilization for the Special Project? (Rank if possible)

	<u>Rank</u>
<u>Identify initial core or cadre personnel.</u>	<u>6</u>
<u>Obtain adequate project definition.</u>	<u>2</u>
<u>Develop organizational requirements.</u>	<u>5</u>
<u>Identifying a report/management information requirements.</u>	<u>3</u>
<u>Obtaining required physical facilities.</u>	
<u>Establishing financial reporting system.</u>	
<u>Putting in-place an effective public relations office.</u>	
<u>Managing logistics.</u>	<u>4</u>
<u>Recruiting and retaining good personnel.</u>	<u>1</u>
<u>Other (specify)</u>	

### III. Organizational Concept

1. Did the operating concept of the construction mission (authority, responsibilities, responsible parent organization) change during the special project?

	Check		
	Change	No Change	Don't Know
Authority of Project Manager	<u>72.0%</u>	<u>22.0%</u>	<u>6.0%</u>
Responsibilities of Project Manager	<u>64.0%</u>	<u>30.0%</u>	<u>6.0%</u>
Organizational element Project Mgr reports to	<u>61.5%</u>	<u>32.7%</u>	<u>5.8%</u>

2. Did the scope of the Special Project change during the design/construct process (check).

Size or	decreased	remained the same	increased
<u>Proj 1</u>	<u>10.2%</u>	<u>42.9%</u>	<u>46.9%</u>
<u>Proj 2</u>	<u>13.0%</u>	<u>39.1%</u>	<u>47.8%</u>
<u>Proj 3</u>	<u>12.5%</u>	<u>25.0%</u>	<u>62.5%</u>
	<u>12%</u>		<u>52%</u>

- a. If a change occurred, what was the causal factor?

(1) increase/decrease in allocated \$	_____	Multiple answers obtained. (1), (2), & (3) were checked 40.4% where as (3) was checked singly 24.6%. All others were 9% or less.
(2) cost over-runs	_____	
(3) change in design	_____	
(4) change in location	_____	
(5) don't know	_____	

3. Did the Project Manager Organizational Structure change during the duration of the Special Project?

Yes 76.9%      No 15.4%      Don't Know 7.7%

- a. How many times?

	<u>Proj 1</u>	<u>Proj 2</u>	<u>Proj 3</u>
1	<u>16.7%</u>	<u>25%</u>	_____
2	<u>22.2%</u>	<u>25%</u>	_____
3 or more	<u>61.1%</u>	<u>50%</u>	_____

b. What was the reason?

	<u>Proj 1</u>	<u>Proj 2</u>	<u>Proj 3</u>
(1) Improper original configuration	<u>11.1%</u>	_____	_____
(2) Change/growth in workload	<u>11.1%</u>	_____	_____
(3) New responsibilities	<u>19.4%</u>	_____	_____
(4) Other (specify)	<u>16.7%</u>	_____	_____
(5) [(2), (4)]	<u>11.1%</u>	_____	_____

4. Did the Program Manager have adequate authority for the job?

	<u>Proj 1</u>	<u>Proj 2</u>	<u>Proj 3</u>
Yes	<u>80.4%</u>	<u>73.7%</u>	_____
No	<u>13.0%</u>	<u>15.8%</u>	_____
Don't Know	<u>6.5%</u>	<u>10.5%</u>	_____

5. Who did the Project Manager report to?

	<u>Proj 1</u>	<u>Proj 2</u>	<u>Proj 3</u>
a. OCE	<u>34.6%</u>	<u>47.4%</u>	_____
b. Div/Dist	<u>23.1%</u>	<u>26.3%</u>	_____
c. Other DOD Services	_____	_____	_____
d. Other Federal Agency	_____	_____	_____
e. Host Country	_____	_____	_____
f. Other (specify)	_____	_____	_____
g. (a, b)	<u>15.4%</u>	_____	_____

a. Was the above arrangement satisfactory?

Yes 69.2%      No 23.1%      Don't Know 7.7%

b. If "no" in 5a, why?

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#### IV. Personnel

1. Was the special project initiated by a cadre of individuals that were later replaced by "duration" employees.

Yes 67.3%      No 25.0%      Not Sure 7.7%

2. What is your opinion on the use of cadre individuals?

Good idea, they give a quick kick-off	<u>52.2%</u>
Good idea, but not enough information transferred during replacement	<u>26.1%</u>
Bad idea, duration employees should be used	<u>21.7%</u>

Comments:

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3. Was turnover of personnel a problem?

	<u>Initial Design/Const</u>	<u>Peak Constr</u>	<u>Phase Down/ Close-Out</u>
Yes	<u>56.3%</u>	<u>68.8%</u>	<u>63.4%</u>
No	<u>27.1%</u>	<u>22.9%</u>	<u>17.1%</u>
Don't Know	<u>16.7%</u>	<u>8.3%</u>	<u>19.5%</u>

a. If yes, do you know why turnovers occurred so frequently?  
Please state your perception of the problem.

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4. Was obtaining qualified personnel a problem?

	<u>Initial Design/Constr</u>	<u>Peak Constr</u>	<u>Phase Down/ Close-Out</u>
Severe Problem	<u>52.0%</u>	<u>38.3%</u>	<u>32.5%</u>
Moderate Problem	<u>34.0%</u>	<u>51.1%</u>	<u>35.0%</u>
No Problem	<u>6.0%</u>	<u>6.4%</u>	<u>17.5%</u>
Don't Know	<u>8.0%</u>	<u>4.3%</u>	<u>15.0%</u>

a. If a problem existed, please state your perception of why.

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5. How were employees selected?

Direct selection by OCE	_____
From employees in the area	_____
on other jobs	_____
Corp-wide register	<u>28.3%</u>
Other (specify)	_____
Don't Know	<u>15.1%</u>

6. Who selected employees?

Managers	<u>16.7%</u>
Immediate supervisor	<u>13.0%</u>
OCE	_____
Civilian Personnel Office	_____
Other (specify)	_____
Don't Know	<u>14.8%</u>

7. Were financial incentives used to recruit personnel?

Yes 86%                      No 14%

a. If yes, what were they and were they adequate?

<u>Incentive</u>	<u>Adequate</u>	<u>Inadequate</u>
<u>Premium Pay</u>	<u>70%</u>	<u>30%</u>
<u>Higher Grades</u>	<u>73%</u>	<u>27%</u>
<u>Overtime</u>	<u>54%</u>	<u>46%</u>
<u>Cola</u>	<u>100%</u>	<u>0</u>

8. What, if any, were the personnel problems (please rank - the most severe problem as 1 and the least problem as 6)?

	<u>Proj 1</u>	<u>Proj 2</u>	<u>Proj 3</u>
Condition/availability of life support facilities	<u>3</u>	_____	_____
Obtaining qualified personnel	<u>1</u>	_____	_____
Availability of "accompanied" status	<u>2</u>	_____	_____
"Adjustment" of employees/families	<u>4</u>	_____	_____
Grade/pay	<u>5</u>	_____	_____
Other (specify)	<u>6</u>	_____	_____

## V. Contracts

1. What type(s) of contract(s) were used?

<u>Type of contracts</u>	<u>Design</u>	<u>Constr</u>	<u>Design/ Constr</u>	<u>Mgmt Support</u>
Cost plus fixed fee	<u>63.6%</u>	<u>48.1%</u>	<u>95.5%</u>	<u>94.7%</u>
Cost plus incentive fee	_____	_____	_____	_____
Cost plus award fee	_____	_____	<u>2.3%</u>	<u>2.6%</u>
Firm fixed price	<u>27.3%</u>	<u>37.0%</u>	_____	_____
Other (Specify)	_____	_____	_____	_____
Don't Know	_____	_____	_____	_____

2. Based upon your experience, do you have any recommendations on the number and type of contractors that should be employed?

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3. Please specify the required experience factors used to select a contractor.

	<u>Experience Factor</u>	<u>Design</u>	<u>Construction</u>	<u>Management</u>
1.	<u>Experienced type of work</u>	_____	_____	_____
2.	<u>Experienced Overseas</u>	_____	_____	_____
3.	<u>Personnel assigned</u>	_____	_____	_____
4.	_____	_____	_____	_____
5.	<u>Don't Know</u>	_____	_____	_____

4. Was the degree of subcontracting limited?

Yes 64.7%      No 25.5%      Don't Know 9.8%

- a. If yes, how was it specified?

% of work 21.4%

Type of work 28.6%

Other (specify) 35.7%



5. Were any of the contractors required to utilize Cost/Scheduling Control System Criteria (C/SCSC) for reporting and billing?

Yes 44.9%                      No 34.7%                      Don't Know 20.4%

- a. If not, what reporting system(s) were utilized.

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- b. Was quality or timeliness of contractor reports a problem?

Yes 79.5%                      No 20.5%

Comments:

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#### VI. Facilities, Equipment, and Material

1. Acquisition of which, if any, of the following presented problems:

	<u>No Problem</u>	<u>Minor Problem</u>	<u>Major Problem</u>
Housing			
Unaccompanied	<u>15.9%</u>	<u>56.8%</u>	<u>27.3%</u>
Accompanied	<u>21.4%</u>	<u>57.1%</u>	<u>21.4%</u>
Office space	<u>44.2%</u>	<u>41.9%</u>	<u>14.0%</u>
Office furnishings	<u>44.2%</u>	<u>44.2%</u>	<u>11.6%</u>
Communication network	<u>10.9%</u>	<u>26.1%</u>	<u>63.0%</u>
Operating forms and materials	<u>41.5%</u>	<u>46.3%</u>	<u>12.2%</u>
Recreation and entertainment facilities	<u>31.8%</u>	<u>52.3%</u>	<u>15.9%</u>
Construction equipment	<u>27.9%</u>	<u>55.8%</u>	<u>16.3%</u>
Construction materials	<u>14.3%</u>	<u>45.2%</u>	<u>40.5%</u>
PX/Commissary items	<u>14.9%</u>	<u>63.8%</u>	<u>21.3%</u>

2. What types of items, if any, were furnished to contractor(s) by the government?

	Amount		
	Too Little	Correct	Too Much
Construction equipment	<u>28.6%</u>	<u>50.0%</u>	<u>21.4%</u>
Construction material	<u>8.3%</u>	<u>91.7%</u>	<u>8.3%</u>
Computer time	<u>8.3%</u>	<u>58.3%</u>	<u>33.3%</u>
Other (specify)	<u>      </u>	<u>80.0%</u>	<u>20.0%</u>

3. Did the Corps monitor contractor procurement?

occasionally 100% frequently 54.0% near 100% 36.0%

4. Was an automated system utilized for:

	Early Phase	Peak Constr	Phase Down
Procurement	<u>8.7%</u>	<u>39.1%</u>	<u>8.7%</u>
Receiving	<u>4.8%</u>	<u>42.9%</u>	<u>4.8%</u>
Inventory	<u>4.8%</u>	<u>14.3%</u>	<u>28.8%</u>
Issue	<u>5.6%</u>	<u>22.2%</u>	<u>11.1%</u>

5. Did delays in the procurement cycle typically exist?

Yes 83.7% No 10.2% Don't Know 6.1%

- a. If yes, where were the delays caused by

Not ordering early enough         
 Procurement procedures         
 Vendor processing         
 Shipment         
 Customs         
 Transportation to site         
 Other (specify)       

- b. Were the stock levels monitored so procurement was initiated early enough so shortages did not occur?

Yes 45.5% No 54.5%

## VII. Public Affairs

1. Was there a large public affairs workload associated with the Special Project(s) you were involved with?

Yes 24.5% No 55.1% Don't Know 20.4%

a. If yes, where did the workload come from?

		combinations checked	
(1) Host country dignitaries	<u>7.7%</u>		
(2) Host country press	<u>7.7%</u>		
(3) US VIP's	<u>21.1%</u>	1,3	23.1%
(4) US Press	<u>      </u>	1,2,3,4	15.4%
(5) Other (specify)	<u>      </u>		

b. What suggestions do you have for improving public affairs?

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2. Where you adequately staffed for public affairs?

Yes 48.9%      No 33.3%      Don't Know 17.8%

a. If no, what would have been an adequate staffing level?

<u>Actual</u>	<u>Recommended</u>
<u>1</u>	<u>3</u>

### VIII. Security

1. Was security a problem?

	<u>Yes</u>	<u>No</u>	<u>Don't Know</u>
At construction site	<u>44.7%</u>	<u>48.9%</u>	<u>6.4%</u>
At housing areas	<u>40.0%</u>	<u>51.1%</u>	<u>8.9%</u>
At Government offices	<u>25.6%</u>	<u>69.8%</u>	<u>4.7%</u>
At contractor offices	<u>25.6%</u>	<u>58.1%</u>	<u>16.3%</u>

2. Who was responsible for security?

Corps        Contractor 18.4% Both 28.6% Other (specify) 2.0%

a. If the contractor was responsible, were guidelines provided and performance reviewed?

<u>Guidelines Provided</u>		<u>Performance Reviewed</u>	
Yes	<u>90%</u>	Yes	<u>89.7%</u>
No	<u>10%</u>	No	<u>10.3%</u>

## IX. Communications

1. Did adequate communication exist between:

	<u>Yes</u>	<u>No</u>	<u>Don't Know</u>
Construction site and program management office?	<u>51.0%</u>	<u>46.9%</u>	<u>2.0%</u>
Project management office and Dist/Div?	<u>65.1%</u>	<u>23.3%</u>	<u>11.6%</u>
Housing areas and work sites?	<u>46.3%</u>	<u>43.9%</u>	<u>9.8%</u>
Housing areas and CONUS?	<u>38.1%</u>	<u>54.8%</u>	<u>7.1%</u>

2. How could communications have been improved?

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APPENDIX B:

OUTLINE--DETAILED CONTRACTOR'S QUALIFICATION STATEMENT  
AND COVER LETTER FOR LETTER CONTRACTS

Contractor's Qualification Statement

Letter Divided Into 3 Parts:

Part 1 - General invitation to participate in oral review by the SEB.  
Letter will outline the general procedures for oral review.

Part 2 - Specific areas or questions. The SEB requires for clarification or information on contractors' qualification statement.

Part 3 - Attachments Tab A thru (as required).

TAB A - Contractor's proposed organizational structure which tentatively outlines:

- \*On site organization structure

- \*Lists dedicated managers (includes resume of qualifications statement)

- \*Job descriptions

- \*Rear support, if any

TAB B - Contractor's proposed benefits package

General statement reemphasizing short duration of the project: quality of life for worker personnel: statement of position on accompanied tours and availability R&R for government or contractor personnel.

Statement highlighting that there will be no salary readjustments during contract period. Contractor will outline policy encompassing:

- \*Overtime

- \*Sick leave

- \*Define normal workdays

- \*Salary differentials

TAB C - Contractor's proposed automated inventory control system and management information system (ICS&MIS)

Contractor's oral evaluation will include statement of whether or not he has an automated ICS/MIS system currently in operation. Requires a statement on how he intends to implement such a system.

Specifically: Types of hardware  
Types of standards

Provide contractor w/ICS criteria minimum

Provide contractor w/sample management report

Contractor will be required to operate under WBS and NAS

The contractor will be required to present his plan for C3-command, control, and communications.

TAB D - Concept of life support for life cycle management of project

\*Schedule

\*Cost

\*Identify geographic peculiarities that contractor will encounter that justify projected costs and tentative schedules

#### Cover Letter for Letter Contract

Purpose: To definitize letter contract.

Contents: Directed scheduled  
Proposal format  
Mobilization plan  
Date for post-award conference (D+18)

## APPENDIX C:

### TYPE OF CONTRACTS\*

#### DEFINITION OF CONTRACT

In procurement terms, a contract is simply an agreement between buyer (the Government) and seller (the contractor) stating what each will do in a particular transaction. As long as the agreement includes consideration - that is, an exchange of value - an enforceable contract results except in very unusual circumstances. In a sense, then, when dealing by contract, buyer and seller define their own legal rights and obligations. This makes the contract a matter of primary interest and subject to intense bargaining in the procurement process.

#### FAR ON CONTRACT TYPE

The Government, like any other buyer, wants its contractors and suppliers to assume as much risk for the procurement as is fair. Therefore, it prefers to use firm fixed-price contracts whenever a reasonable basis for firm pricing exists. In fact, FAR 18-201 states that "contracts for construction shall be formally advertised and be of the fixed-price type." But the Government recognizes, too, the unusual risks of filling certain of its needs and, therefore, authorizes several different types of contracts varying in degree of risk to fit the procurement circumstances. The decision as to contract type is made by the procuring activity on the basis of its knowledge of the buy. It is one of the major decisions in the procurement process and calls for close familiarity with the contract alternatives described in this presentation.

#### DECIDING WHICH TYPE CONTRACT

As a rule, defense contracts increase in complexity with the complexity of the product or service performed. A brief purchase order may do to buy a standard commercial item. But if the Government is buying specially designed equipment or construction of facilities, it must describe its requirements in more detail. It may find it necessary to define many factors: performance goals, design approvals, quality-assurance measures, test procedures, and schedule objectives. As might be expected, each added requirement may increase the risks, and therefore, the costs of the work. The contractor weighs these factors carefully in deciding whether to compete for the job. Within certain limits, he may be willing to accept more risk for greater profit. Beyond that, though, he will want the Government to share the risk. This balancing of financial risk and reward underlies the Contracting Officer's choice of a contract type.

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\*From Project Managers' Guide for Military Construction (U.S. Army Corps of Engineers, 1983).

## TWO CATEGORIES

There are two broad categories of contract types, the fixed-price type and the cost-reimbursement type. The fixed-price type contract usually stipulates a firm price. This type of contract includes a price ceiling limiting the financial obligation of the Government to the contractor for satisfactory completion of the contract. Under the fixed-price contract, the contractor guarantees performance.

### COST-REIMBURSEMENT

The cost-reimbursement type provides for reimbursing the contractor for all (or, on occasion, a portion) of allowable and allocable costs incurred in the performance of the contract to the extent the contract prescribes. It may also provide for the payment of a fee to the contractor in addition to his costs. It includes an estimate of total cost of performance for the purpose of obligating funds and establishing a cost ceiling which the contractor may not exceed (except at his own peril) without the prior approval of or subsequent ratification by the Contracting Officer. In essence, the contractor agrees to apply his best efforts to complete the contract work and within the cost ceiling if possible.

### COST-PLUS-INCENTIVE-FEE

Within this broad category, variations of pricing arrangements are available for appropriate use in buying the wide variety of supplies and services needed for defense.

If a cost-reimbursement procurement offers the contractor expectation of substantial compensating benefits beyond the immediate contract (ideas for commercial products, for example), he may be willing to perform without fee, or even for only a share of his allocable costs. Both arrangements are allowed by FAR. Or the Government may want to provide an incentive fee to encourage the contractor to special effort on some aspects of the work. The cost-plus-incentive-fee (CPIF) contract allows for this.

### FIXED-PRICE

The fixed-price contract may be varied, too. If there is too much risk for a firm fixed-price but good reason to hope for reductions in cost or improvements in performance, a fixed-price-incentive (FPI) contract may be used. The FPI differs from the CPIF arrangement in this important respect: in the former, the contractor is responsible for all costs in excess of the ceiling price (that may be needed in order to complete the work.). If procurement costs are uncertain at first, but experience may make a firm price possible later, a fixed-price-incentive-successive targets contract may be used subject to the limitation contained in FAR 2-404. In still another fixed-price situation, market conditions may make material prices and labor rates uncertain. Here escalation may be used to adjust the contract price for material price and labor rate changes as they occur.



## HYBRIDS

Time and materials and labor-hour contracts are hybrids of the two contract types. These are used mainly for engineering, design, repair, or overhaul jobs. Payment is based upon incurred direct labor hours at fixed hourly rates and materials at cost, subject to a specified price ceiling.

## INDEFINITE DELIVERY

Indefinite delivery contracts are used when there is recurring demand for an item, but the timing and/or extent of the demand are not certain. The contract establishes all the terms that are sure; however, orders are not placed until the need arises.

## OTHER ARRANGEMENTS

Three other arrangements - letter contracts, basic agreements, and basic ordering agreements - should also be mentioned. Letter contracts serve as a preliminary agreement for getting work under way before a definitive contract is negotiated but are very difficult to justify and are not often used. Basic agreements are preliminary agreements, too. But they are not enforceable contracts. They merely define the general provisions that will apply when a contract is awarded at a future date. Thus, they are me-savers in dealing with firms on a recurring basis. Basic ordering agreements resemble basic agreements; however, they also include a description of the supplies or services to be furnished and, generally, the applicable ordering procedures.

## CORPS USE OF FIXED-PRICE

Corps of Engineers A-E contracts are normally of the negotiated fixed-price type under which the parties agree that the A-E assumes full responsibility, in the form of profits or losses, for all costs under or over the firm fixed price.

We will summarize the requirements for firm fixed-price contracting as it is defined in FAR 3-401(b)(6); 3-404; and 3-404.2. Be sure to consult these FAR sections for more detailed information. The characteristics of a firm fixed price contract require performance of work or the delivery of supplies or services at a specified firm total price which is fixed at the inception of the contract and which is not subject to adjustment, either up or down, because of the actual cost of performance under the contract. Fixed-price contracts generally are used for all professional services contracts (FAR 18-201) when fair and reasonable pricing can be established at the outset based on a reasonably definitive scope of work to be done which will provide the basis for fair and reasonable pricing of the effort involved. The advantages of firm fixed price contracts include: the least difficult method to administer; encouraging to the contractor to practice economy and efficiency; minimum risk to the Government; accurate obligation of funds at inception; and speed in obtaining contract agreement.

APPENDIX D:

SPECIAL PROJECT PLAN CHECK LIST\*

A. Precontract Operations

1. Program Development

- a. Preparation
- b. Authorization
- c. Program funds allocation

2. Total Program Planning

- a. Development of construction planning schedule
- b. Development of total program budget
- c. Develop detailed scope for AE and construction effort
- d. Contractor personnel phasing plan
- e. Corps of Engineers & AE personnel phasing plan
- f. OCE approval for data processing and information system
- g. Identify and develop communication requirements
- h. Develop early identification of facility turn-over sequences

3. Develop AE Selection Plan

4. Select AE

5. Prepare RFP for Construction Contract

6. Organize Negotiating Team for Cost Reimbursement Contract with Authorities

7. Establish Contractor Selection Board and Charter

8. Arrange for Contract Auditor and/or Internal Review

B. Negotiation Phase

1. Receive Proposal and Evaluate

2. Negotiate with Contractor (documentation of meeting to be sent to field personnel)

3. Prepare for Construction Phase

- a. Develop total list of functions to be accomplished at field level
- b. Develop organization and staffing plans
- c. Arrange for start-up team for initial field operations
- d. Develop standard operating procedures for field operations
- e. Clarify funding scheme for program funds

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\*From working papers used in the Israeli Air Base Program.

- f. Clarify contingency funds
- g. Authorities and responsibilities

- (1) Clearly define by name Contracting Officer authorities at field level

- (a) Cost Reimbursement Contracts
    - (b) Title I AE Contracts
    - (c) Title II AE Contracts
    - (d) Firm fixed price contracts

- (2) Clearly define by name authorities and responsibilities for representative of the Contracting Officer (COR) for each such appointment to be made.

- h. Arrange for support from District level, e.g., F&A

C. Post-Contract-Notice to Proceed

- 1. Planning meetings with contractor

- a. Develop broad operational philosophies based upon negotiations
  - b. Mobilization plans

- (1) Contractor organization
    - (2) Equipment
    - (3) Personnel
    - (4) Support
    - (5) Insurance plans

- 2. Recruiting actions

- a. Preparation of job description
  - b. Advertisements
  - c. Analyze candidate qualifications
  - d. Selections
  - e. Welcome and orientation for each recruit

- 3. Contractor purchasing system review

- a. Purchasing system analyst
  - b. Team selected and authorized for review
  - c. Approval action
  - d. Follow-up

- 4. Accounting procedures clarified and approved

- 5. Management information system

- a. Contractor plan
  - b. Approval
  - c. Must be operative soon after award

6. Communication system (requirements of Corps actions and contractor actions)

- a. Local
- b. Distant

7. Continued contacts and dialogue with contract auditor and/or internal review

8. Establish configuration review board and charter for operation

9. Establish contract control group and operating procedures

10. Prepare to review contractor submitted standard operating procedures

- a. Management procedures
- b. MIS procedures
- c. Construction schedules
- d. Personnel management
- e. Quality control operations
- f. Safety operations
- g. Security operations
- h. Procurement operations
- i. Inventory control procedures
- j. Accounting procedures
- k. Budget preparation and review
- l. WAD System and work orders
- m. Turnover procedures
- n. Training of operating personnel
- o. Port operations

11. Establish library

12. Establish files and filing system

13. Establish data processing and typing capability

14. Plan for training of personnel

15. Plan for administrative and welfare support of families and employees

16. Prepare for contractor evaluations

- a. Develop procedures to evaluate contractors
- b. Establish the organization for evaluation of contractor performance

(1) Award fee board and operating procedures.

(2) Performance evaluation committee and operating procedures

17. Government furnished property

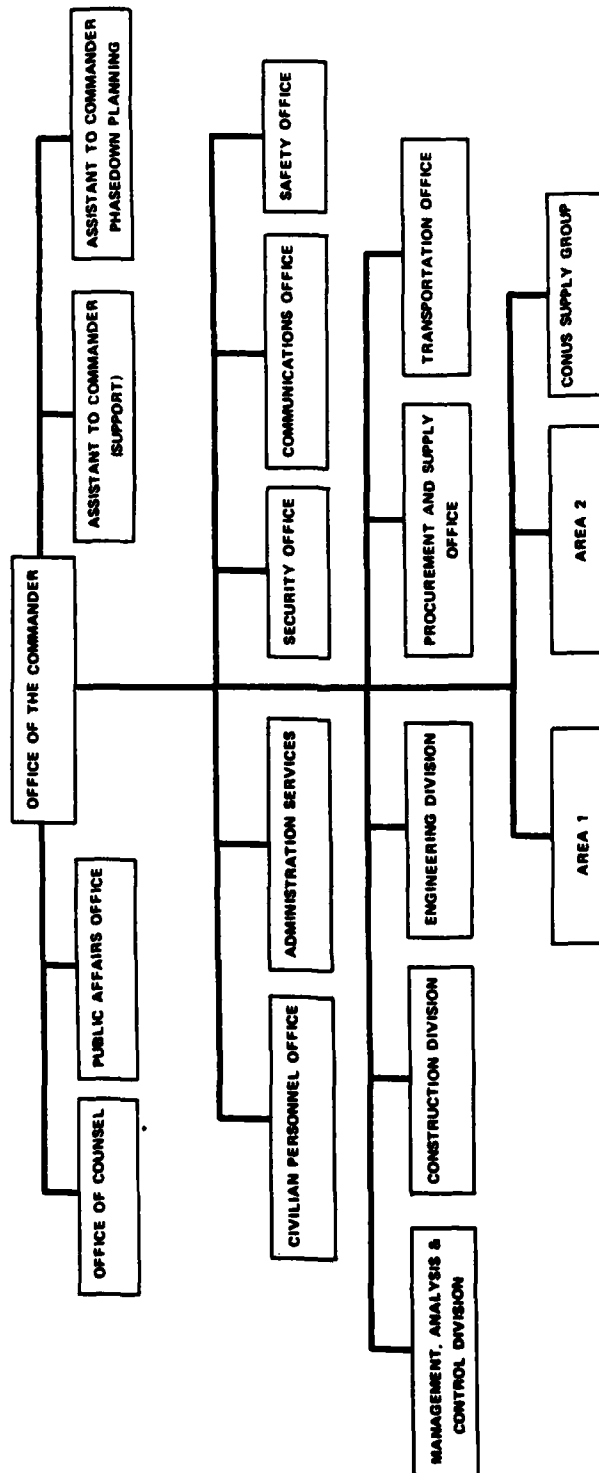
- a. Funding
- b. Procurement procedures

- c. Follow-up
  - d. Warehousing and packaging for shipment
  - e. Shipping
  - f. Receiving
  - g. Reporting of shortage and breakage
  - h. Inventory control
  - i. Turnover documentation
  - j. Placement
18. Contractor demobilization
19. Turnover procedures
- a. Prepare documentation
    - (1) Facilities
    - (2) Equipment
    - (3) Spare parts and special tools
    - (4) Files of shop drawings and other submittals
  - b. Acceptance inspections
  - c. Warranties
20. Fiscal close out of contract
21. Post Completion Involvement

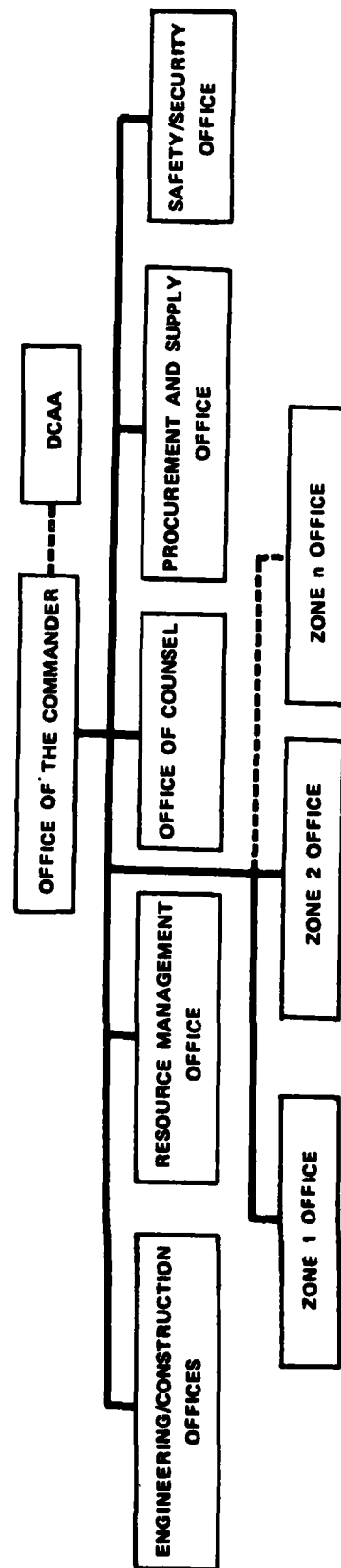
APPENDIX E:

SPECIAL PROJECT ORGANIZATIONAL STRUCTURES

LARGE SPECIAL PROJECTS AREA OFFICE



# MEDIUM SPECIAL PROJECTS OFFICE



OFFICE 1 OFFICE 2 OFFICE n

# CERL DISTRIBUTION

## Chief of Engineers

ATTN: Tech Monitor  
 ATTN: DAEN-ASI-1. (2)  
 ATTN: DAEN-CCP  
 ATTN: DAEN-CW  
 ATTN: DAEN-CWE  
 ATTN: DAEN-CWM-M  
 ATTN: DAEN-CWO  
 ATTN: DAEN-CWP  
 ATTN: DAEN-EC  
 ATTN: DAEN-ECC  
 ATTN: DAEN-ECK  
 ATTN: DAEN-ZCF  
 ATTN: DAEN-ECR  
 ATTN: DAEN-ED  
 ATTN: DAEN-HDC  
 ATTN: DAEN-RDM  
 ATTN: DAEN-RM  
 ATTN: DAEN-ZCZ  
 ATTN: DAEN-ZCE  
 ATTN: DAEN-ZCI  
 ATTN: DAEN-ZCM

FESA, ATTN: Library 22060  
 ATTN: DET III 79906

US Army Engineer Districts  
 ATTN: Library (41)

US Army Engineer Divisions  
 ATTN: Library (14)

US Army Europe  
 AEAEN-ODCS/Engr 09403  
 ISAE 09081

V Corps

ATTN: DEH (11)

VII Corps

ATTN: DEH (15)

21st Support Command

ATTN: DEH (12)

USA Berlin

ATTN: DEH (11)

USASSETAF

ATTN: DEH (10)

Allied Command Europe (ACE)

ATTN: DEH (3)

8th USA, Korea (19)

ROK/US Combined Forces Command 96301  
 ATTN: EUSA-HNC-CFC/Engr

USA Japan (USARJ)

ATTN: AJEN-FE 96343

ATTN: DEH-Honshu 96343

ATTN: DEH-Okinawa 96331

Area Engineer, AEDC-Area Office  
 Arnold Air Force Station, TN 37389

416th Engineer Command 60623

ATTN: Facilities Engineer

US Military Academy 10966

ATTN: Facilities Engineer

ATTN: Dept of Geography &

Computer Science

ATTN: OSCPER/MAEN-A

AMHRC, ATTN: DRXMR-ME 02172

USA ARRCOM 61299

ATTN: DRGIS-RI-I

ATTN: DR SAR-IS

DARCOM - Dir., Inst., & Svcs.

ATTN: DEH (23)

DLA ATTN: DLA-WI 22314

DMA ATTN: NADS 20305

FORSCOM

FORSCOM Engineer, ATTN: AFEN-DEH

ATTN: DEH (23)

MSC

ATTN: HSLD-F 78234

ATTN: Facilities Engineer

Fitzsimons AMC 80240

Walter Reed AMC 20012

INSCOM - Ch, Instl. Div.

ATTN: Facilities Engineer (3)

MDW

ATTN: DEH (3)

MTMC

ATTN: MTMC-SA 20315

ATTN: Facilities Engineer (3)

NARADCOM, ATTN: DRDNA-F 01760

TARCOM, Pac. Div. 48090

TRADOC

HQ, TRADOC, ATTN: ATEN-DEH

ATTN: DEH (19)

TSARCOM, ATTN: STSAS-F 63120

USACC

ATTN: Facilities Engineer (2)

WESTCOM

ATTN: DEH

Fort Shafter 96858

ATTN: APEN-IM

SHAPE 09055

ATTN: Survivability Section, CCB-OPS  
 Infrastructure Branch, LANDA

HQ USEUCOM 09128

ATTN: ECJ 4/7-LOE

Fort Belvoir, VA 22060 (7)

ATTN: Canadian Liaison Officer

ATTN: Water Resources Support Center

ATTN: Engr Studies Center

ATTN: Engr Topographic Lab

ATTN: ATZA-DTE-SU

ATTN: ATZA-DTE-EM

ATTN: R&D Command

CEREL, ATTN: Library 03755

WES, ATTN: Library 39180

HQ, XVIII Airborne Corps and

Ft. Bragg 28307

ATTN: AFZA-FE-ZE

Chanute AFB, IL 61868

3345 CES/DE, Stop 27

Norton AFB CA 92409

ATTN: AFRCX-MX/DEE

Tyndall AFB, FL 32403

AFESC/Engineering & Service Lab

NAFAC

ATTN: RDT&E Liaison Office (6)

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ATTN: Asst. CDR R&D, FAC-03 22332

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Installation Division

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US Army Env. Hygiene Agency

ATTN: HSHB-E 21010

National Bureau of Standards 20760



Kirby, Jeffrey G.

Project manager's handbook for special projects. — Champaign, Ill:  
Construction Engineering Research Laboratory, 1984.

76 p. (Technical report / Construction Engineering Research Laboratory ; P-85/01)

1. Special projects. 2. Project management. 3. Construction industry—management. I. Title. II. Series: Technical report (Construction Engineering Research Laboratory) ; P-85/01.

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